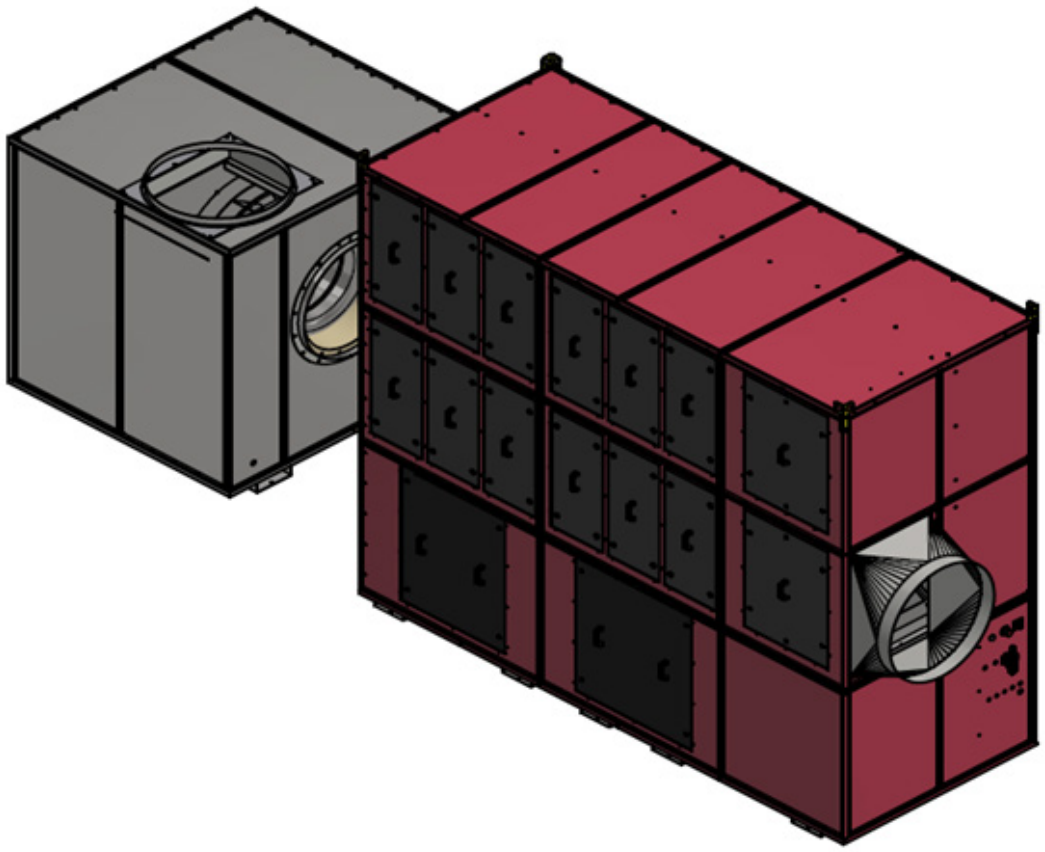
FILTRATION UNIT

DIGIFILTER SEPARATE

SAFETY INSTRUCTIONS FOR OPERATING AND MAINTENANCE

NO EM61000015; EM61000016; EM61000017; EM61000023; EM61000024; EM61000025



ISSUE : EN
REVISION : B
DATE : 01 - 2025

Instructions

REF: 8695 8910

Original instructions

LINCOLN® ELECTRIC

Thank you very much for the trust you have shown by choosing this piece of equipment. It will give you trouble-free service if it is used and maintained as recommended.

Its design, component specifications and manufacturing are in accordance with applicable European directives.

Please refer to the CE declaration enclosed to identify the directives applicable to it.

The manufacturer shall not be liable for any combination of parts not recommended by it.

For your safety, please follow the non-limitative list of recommendations and obligations, a large part of which are included in the Labour Code.

Please inform your supplier if you find any error in this instruction manual.

Table of contents

INFORMATION

This technical literature is intended for the following machines or products:

- **DIGIFILTER 16CD** automatic unclogging filter with inlet on the right ➜ EM61000015
- **DIGIFILTER 16CD** automatic unclogging filter with inlet on the left ➜ EM61000023
- **DIGIFILTER 20CD** automatic unclogging filter with inlet on the right ➜ EM61000016
- **DIGIFILTER 20CD** automatic unclogging filter with inlet on the left ➜ EM61000024
- **DIGIFILTER 24CD** automatic unclogging filter with inlet on the right ➜ EM61000017
- **DIGIFILTER 24CD** automatic unclogging filter with inlet on the left ➜ EM61000025

Use of the equipment:
Please read this manual before you start handling, installing or using the machine. Keep the manual safe in a place known to the machine user and maintenance personnel until the machine is finally destroyed.
This manual explains how to transport, install, use and maintain the filter. It cannot in any event replace the experience of the user for operations of varying difficulty.
Before the filter is used by a new user, make sure that they have read this manual and understood all the explanations provided.
For any further information, please feel free to contact the technical departments of **LINCOLN ELECTRIC**.

Machine guarantee:
This machine is guaranteed for 12 months from the date of purchase.
During the first 12 months of use, defective parts shall be replaced free of charge providing the damage is not the result of improper use of the machine.
The machine guarantee shall cease automatically when the machine is no longer the property of the original buyer.
The terms of validity of the guarantee shall be subject to verification and acceptance by our sales department.
Any nonconforming use that could damage the machine shall not be covered by the guarantee.
For the guarantee to operate, the equipment must be inspected by our technical department.

Assistance:
LINCOLN ELECTRIC is at your disposal for any work on your equipment.
Please send any requests to the technical department.

HOT LINE (+33) 825 132 132

Display and pressure gauge:

Measurement instruments or displays of voltage, intensity, speed, accuracy etc. are to be considered as indicators, whether they are analogue or digital.

In spite of all the measures applied, invisible residual risks may still remain.
Residual risks can be reduced if the safety instructions are observed, the machine is used as recommended and general service instructions are followed.

This manual and the product with which it is associated refer to the applicable standards in force.

Please read this document carefully before you install, use or maintain the machine. Keep this document in a safe place for future reference. This document must follow the machine described if there is a change in ownership of the machine and accompany it up to demolition.

REVISION

REVISION : B DATE : 01/25

DESCRIPTION	PAGE
Update	

MEANING OF SYMBOLS

To make this document easier to understand, it contains pictograms with the meanings given below:

	Reading the manual/instructions is mandatory.		Indicates a hazard.
	Mandatory use of safety shoes.		Warning of an electricity risk or hazard.
	Mandatory use of hearing protection.		Warning of a risk or hazard due to an obstacle on the floor.
	Mandatory use of a safety helmet.		Warning of a risk or hazard of falling with a level change.
	Mandatory use of safety gloves.		Warning of a risk or hazard due to suspended loads.
	Mandatory use of safety glasses.		Warning of a risk or hazard due to a hot surface.
	Mandatory use of a safety visor.		Warning of a risk or hazard due to moving mechanical parts.
	Mandatory use of safety clothing.		Warning of a risk or hazard due to a closing movement of mechanical parts of a machine.
	Make sure you clean the working zone.		Warning of a risk or hazard due to laser radiation.
	Mandatory use of breathing protection.		Warning of a risk or hazard due to an obstacle at a height.
	Visual inspection required.		Warning of a risk or hazard due to the presence of a pointed part.
	Indicates a lubrication operation.		Wearers of pacemakers may not be admitted in the designated area.
	Requires maintenance action.		

DECLARATION OF CONFORMITY

LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

DIGIFILTER UNCLOGGING FILTER

CE DECLARATION OF CONFORMITY

1) CE/EU DECLARATION OF CONFORMITY

Dear customer,
This CE/EU declaration of conformity certifies that the supplied equipment complies with applicable laws and regulations when used in accordance with the enclosed instructions. Any other assembly or modification would void our certification. That is why you are asked to call in the manufacturer for any modifications you wish to make. Failing that, the company responsible for the modification must repeat the certification process. In that case, we would not be liable for the new certificate in any way. Please hand this document over to your technical department or purchasing department for filing.

DESCRIPTION: **DIGIFILTER 16CD AUTOMATIC UNCLOGGING FILTER**

TYPE: **EM61000015 (Inlet on the right) and EM61000023 (Inlet on the left)**

NUMBER: **See name plate**

2) This equipment complies with European directives.

☒ 2006/42/EC **☒ 2011/65/EU** **☒ 2014/30/EU**

3) Based on the following harmonised standards:

- **EN ISO 12100: 2010**
- **EN ISO 13850: 2015**
- **EN ISO 13857: 2019**
- **EN ISO 12499**
- **EN 60204-1: 2008**

4) Air Treatment Products Manager, authorised to compile the technical manufacturing document.

Mr Patrick DEGROOTE
LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

5) The Manufacturer.

LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

CERGY, 29/10/2019

LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
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DESCRIPTION: **DIGIFILTER 20CD AUTOMATIC UNCLOGGING FILTER**

TYPE: **EM61000016 (Inlet on the right) and EM61000024 (Inlet on the left)**

NUMBER: **See name plate**

2) This equipment complies with European directives.

☒ 2006/42/EC **☒ 2011/65/EU** **☒ 2014/30/EU**

3) Based on the following harmonised standards:

- **EN ISO 12100: 2010**
- **EN ISO 13850: 2015**
- **EN ISO 13857: 2019**
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DESCRIPTION: **DIGIFILTER 24CD AUTOMATIC UNCLOGGING FILTER**

TYPE: **EM61000017 (Inlet on the right) and EM61000025 (Inlet on the left)**

NUMBER: **See name plate**

2) This equipment complies with European directives.

☒ 2006/42/EC **☒ 2011/65/EU** **☒ 2014/30/EU**

3) Based on the following harmonised standards:

- **EN ISO 12100: 2010**
- **EN ISO 13850: 2015**
- **EN ISO 13857: 2019**
- **EN ISO 12499**
- **EN 60204-1: 2008**

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CERGY, 29/10/2019

A - IDENTIFICATION

The information below should be provided in all correspondence.

1 - Limits of use of the machine

The limits of use of the machine are provided in the different documents; please review them carefully before starting to use the machine.

For safety reasons, the working area may only be occupied by one individual.

The machine may only be operated by a single person above the age of 18 and trained in operating and use-related risks.

The machine may only be used for filtering cutting fumes; any other use of the machine is forbidden.

Mechanical or electrostatic filtration systems are effective for the filtration of solid particles, but not gaseous particles.

The machine is designed for outdoor discharge.

If the fumes are discharged indoors (not recommended), the workshop in which fumes are discharged must be ventilated so as to not reach the professional exposure limit value of pollutants (fumes and gases)

Field of application:

Filtration of solid particles and dry dust, non-flammable gas, with no risk of explosion.

- Zinc, paper, flour, plant leaves, graphite, aluminium from grinding and sanding etc. and other such dust is to be excluded, because electrostatic discharge or welding splatter would present a risk for those using the filter.
- The air flow through the filter medium must not be at a temperature above 80 °C.
- This machine is not designed for extracting chemicals.
- The choice of equipment is made to suit the pollutants to treat. Extraction at source of the pollutant is only effective if the machine is operating at its nominal power (air flow at the nozzle).

Take particular care to:

- Not obstruct the air outlet of the machine.
- Not introduce external elements into the filter (paper, cloths, cigarette butts etc.)
- Replace the filter medium with new original **LINCOLN ELECTRIC** medium, which alone can guarantee the filtration characteristics.
- Replace the hoses if they are pierced.
- Regularly clean the metal pre-filter on those machines that have one.

Specific case of chlorine solvents (used for cleaning or degreasing):

- **The fumes of such solvents turn into toxic gas when they are subjected to arc radiation.**
- **Such solvents may not be used with parts to cut, as they cannot be filtered by the DIGIFILTER.**

The energy supply must imperatively comply with recommendations.
The customer must supply and install a device for isolating each utility source (electricity, air). The devices must be clearly identified. They must be of the locking type.

The machine is designed for professional use.

Before use, the operator must make sure that there is no risk of collision with personnel.

Before using the machine, make sure that all the guards are in place.

“No climbing on the structure of the machine other than on platforms or gangways designed for that purpose.
To access equipment at heights, the user must use accessing means in accordance with the regulations, such as a safe mobile gangway, an aerial lift etc.”.

Never modify the machine.

The machine is not designed for anchoring lifting equipment.

The use of Personal Protective Equipment (PPE) and work clothing covering the body is mandatory in the work area. Do not wear a tie and keep your hair tied back securely.

While installing the DIGIFILTER:

- **Make sure that the emergency stops of the machine are interconnected.**
- **Check that the fan is rotating in the correct direction.**
- **Check that ground connections are made correctly.**

For any extended absence, the operator must shut off the supply of utilities (electricity and fluids)

Maintenance may only be carried out by experienced personnel who are trained in machine-related risks.

Access to the machine must be left free for maintenance (e.g. no workpiece etc.).

The frequency of such maintenance is indicated for production in one work shift per day (i.e. 8 hours a day).

Consumables (filter) must be changed based on their wear and tear.

Visually inspect the overall condition of the machine and the working area twice a shift, or with every change of production.

The maintenance schedule must absolutely be followed.
We recommend putting in place a traced system for tracking all your maintenance operations.

All maintenance must be carried out by specialised personnel who have read and understood this manual.

Electricity technician

☛ Qualified operator with the skills for working in normal conditions on electrical components for regulation, maintenance and repair.

Mechanical technician

☛ Specialised technician authorised to carry out complex and exceptional mechanical operations.

2 - Residual risks

Based on the results of the risk assessment, a few elements have emerged where there was no “technical” solution for eliminating risk or making it negligible.

In spite of all the care that has gone into the designing of our machines, some risk areas remain.
To control these risks, the customer must pay particular attention to them, ensure that the instructions are applied and define any additional measures that may be necessary in view of its own internal operating procedures.

Therefore, you will find below a guidance list of residual risks.
Training of operators in safety and in the use of the machine from their operating position will better address these residual risks.

We recommend putting in place workstation instructions that remind users of the presence of residual risks in the working area.

2.1 - Residual risks - General

☛ **Environment risk - slipping and/or falling**

The working and safety area must be clear of all obstacles.

The working area must be kept clean and cleaned regularly.

The machine must undergo periodic maintenance (see maintenance instructions of each piece of equipment). In particular, cutting dust around the machine must be cleaned.

The operator must pay special attention to cables on the floor.

The operator must use the necessary personal protective equipment (helmet, gloves, safety shoes, mask and work clothing)

While unpacking the machine, the area around the **DIGIFILTER** must be sufficiently large and clear, in order to avoid falls.

Falling from heights:

In order to be protected from falling from heights and for access to high parts, the operator or technician must use access means that comply with applicable standards (e.g. during the assembly, disassembly or maintenance of ducts).

For all work at heights, the use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs and harness) is indispensable.

For all work at heights, the operator must be trained in the use of means for accessing high locations.

☛ **Mechanical risk - Impacts, shearing, crushing**

The operator may not wear loose clothing or a tie, must have their hair tied back and use personal protective equipment (helmet, gloves, safety shoes, mask and work clothing).

The operator must make sure that nobody else is close to the machine before starting.

The **DIGIFILTER** must not operate when any of the extraction components (pre-filter, filter) are missing.

The operator must make sure that all the machine guards are in place before using it.

Before any work on a part of the extraction system (electrical or other), the system must be disconnected using the disconnecting switch.

Even after taking that precaution, mind the fan components, which can remain in motion due to the windmill effect (blades driven by air flow).

The operator’s working position is before the control console.

The machine safety areas must not be crossed.

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

Tipping over of the **DIGIFILTER** during installation or moving, presence of a worker under the load.

The extraction system may not be modified.

The weights and positions of the forks are indicated in this document. The handling equipment must be rated for those requirements.

Any change in the machine location must be made by **LINCOLN ELECTRIC** or personnel trained in handling

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Mechanical risk - Puncturing or piercing**

The use of personal protective equipment (gloves, safety shoes, work clothing) is indispensable during unpacking and installation.

Such equipment is indispensable while installing the fume extraction ducts (sharp parts.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

2.2 - Residual risks during operation or simple maintenance

☛ **Electrical risk - Electric shock or electrocution**

Contact with electrical parts:

Access to the electrical cabinet must be restricted to authorised personnel.

Before any work on a part of the extraction system (electrical or other), the system must be disconnected using the disconnecting switch.

Caution: With the optional ICP, cables connected to the fan may remain live for several minutes after the machine has been disconnected.

From time to time, check that the machinery and its electrical accessories - connectors, flexible cables and extension cords - are correctly insulated and connected.

Work for maintaining and repairing insulating ducts and enclosures may not be carried out in a haphazard manner.

- All repairs are to be carried out by specialists, or better yet, defective accessories should be replaced.
- Regularly check that the electrical connections are tight, with no heating

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs, fire-resistant work clothing) is indispensable.

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Ergonomics risk - Fatigue**

Changing/emptying containers:

The operator must use appropriate handling means.

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Material and product risks - Poisoning**

Emission of fumes/dust:

Important: while changing or cleaning the filter, the extraction system must be disconnected from the electricity source. The application of an emergency stop is not sufficient. Indeed, unclogging can start away from fan operation.

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs, work clothing) is indispensable.

The efficiency of the extraction system must be inspected regularly and corrected if it is not adequate (e.g. by cleaning the pre-filter, changing the filters, inspecting all piping).

Any fans placed in a circuit in which the air is laden with dust must be cleaned from time to time. That is because the turbine may be fouled and become unbalanced, leading to increased noise and premature wear and tear of bearings. Maintenance is required at least after every six months, depending on the type of dust treated.

The fan is an essential element of your extraction system.

Incorrect operating or inadequate maintenance could make the operator less safe. That is why the fan must be maintained in perfect condition.

Your installation has been selected for a specific application. The turbine is characterised by an operating point based on extraction speed (speed of air in the piping) and head loss.

In accordance with the regulations of CARSAT and INRS, the system must be inspected from time to time to make sure that it continues to comply with its reference values.

Used filters and dust in the containers must be placed in appropriate locations and then reprocessed in accordance with the standards of the country in which the system is installed

The operator must be trained in the use of the machine, and all personnel must be aware of residual risks.

☛ **Mechanical risk - Puncturing or piercing**

Contact with a part of the pneumatic circuit that is under pressure

Before any work on the pneumatic circuit, the pneumatic supply must be switched off and the circuit must be purged (Caution! There is a 22-litre reserve) to avoid any accidental lashing of the hoses.

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs) is indispensable.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

☛ **Thermal risk - Burns**

Part of the body in contact with a hot component (while emptying containers, changing filters)

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs) is indispensable.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

☛ **Noise risk - Fatigue**

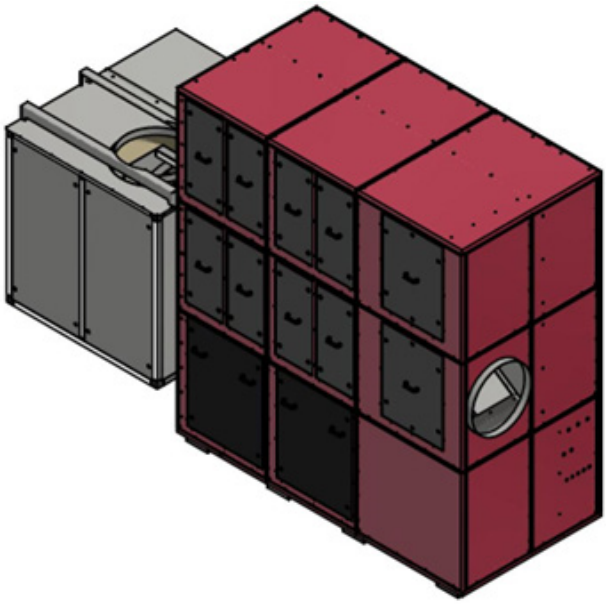
Process noise

The use of personal protective equipment (helmet, gloves, safety shoes, mask, ear muffs) is indispensable.

The operator must be trained in the use of the machine and all personnel must be aware of residual risks.

1 - Overall description

For your safety and optimum performance, please read this manual carefully before using the filter.



The sandwich panel and metal structure design optimises the weight and strength of the machine, while guaranteeing sealing against the fine dust treated. It can be put in place easily thanks to its monobloc construction, which helps minimise noise. The filter is managed by a PLC associated with a 5.7” HMI screen. That helps monitor the operating condition, maintain the quality of internal filtering elements and ensure an effective and continuous extraction rate.

The machine quality allows us to offer speedy deliveries, for a low cost of transport and installation. The system takes up little floor space and can be removed at any time.

Benefits:

- The operating cycle is managed by a PLC associated with a 5.7” HMI screen.
- Very high unclogging efficiency - Self-cleaning of cartridges during operation.
- High filtration efficiency thanks to filter cartridges with PTFE membrane. /Low noise.
- Three operating modes are possible: Manuel – Weekly clock – Automatic.
- Standard cleaning after use (Offline mode).
- Simple installation.
- Compact modular design with a separate fan box.
- Low maintenance that can be scheduled from the human machine interface (HMI) screen.

Delivery:

The unit is generally delivered in three parts:

- two elements, lower and upper, for the filtration unit, and
- a motor box for extraction

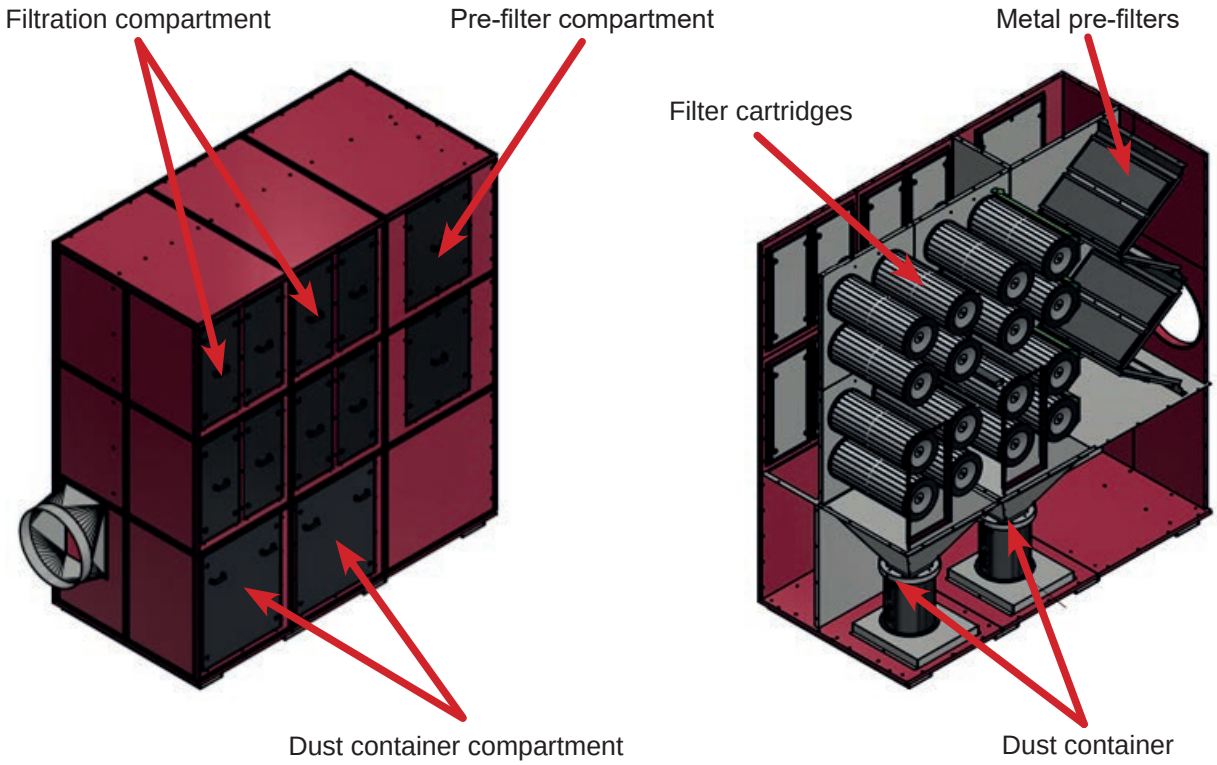
DIGIFILTER 16CD	
DIGIFILTER 16 CD Inlet to the right	EM61000015
DIGIFILTER 16 CD Inlet to the left	EM61000023
Additional ICP – Variable frequency drive: Air flow variation	EM61000031
Additional soundproofing: Soundproofing foam and reinforced door	EM61000039
Additional rotary discharger and bulk bag	EM61000047
Additional galvanised top for outdoor assembly	EM61000056
Additional vertical discharge for outdoor assembly	EM61000071

DIGIFILTER 20CD	
DIGIFILTER 20 CD Inlet to the right	EM61000016
DIGIFILTER 20 CD Inlet to the left	EM61000024
Additional ICP – Variable frequency drive: Air flow variation	EM61000032
Additional soundproofing: Soundproofing foam and reinforced door	EM61000040
Additional rotary discharger and bulk bag	EM61000048
Additional galvanised top for outdoor assembly	EM61000057
Additional vertical discharge for outdoor assembly	EM61000072

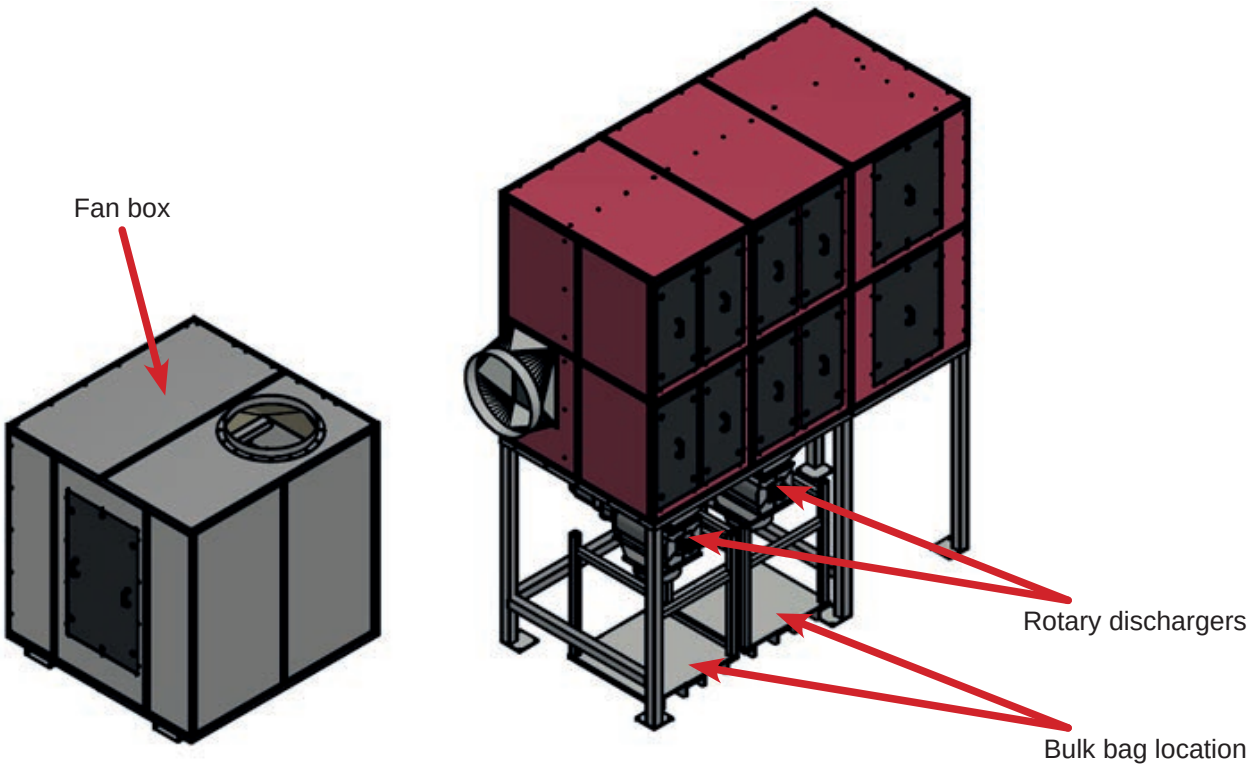
DIGIFILTER 24CD	
DIGIFILTER 24 CD Inlet to the right	EM61000017
DIGIFILTER 24 CD Inlet to the left	EM61000025
Additional ICP – Variable frequency drive: Air flow variation	EM61000033
Additional soundproofing: Soundproofing foam and reinforced door	EM61000041
Additional rotary discharger and bulk bag	EM61000049
Additional galvanised top for outdoor assembly	EM61000058
Additional vertical discharge for outdoor assembly	EM61000073

3.1 Composition of the unit

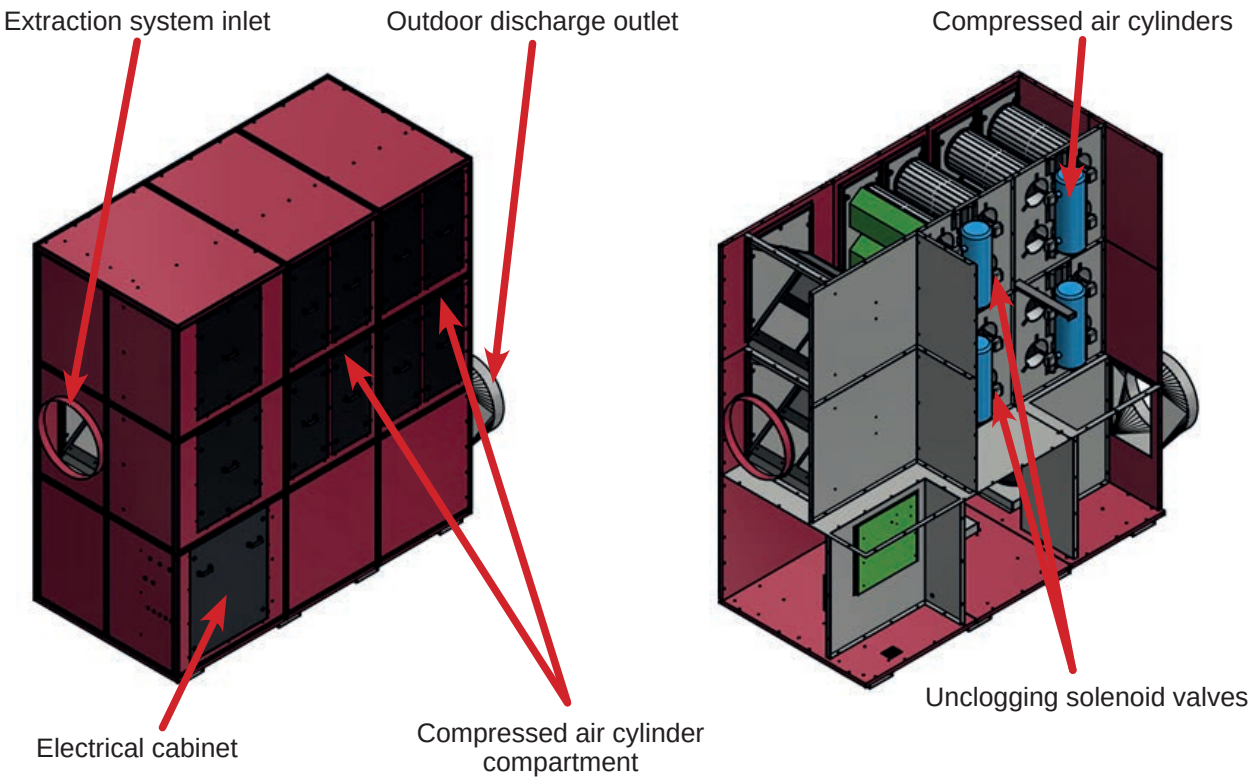
Filtration components



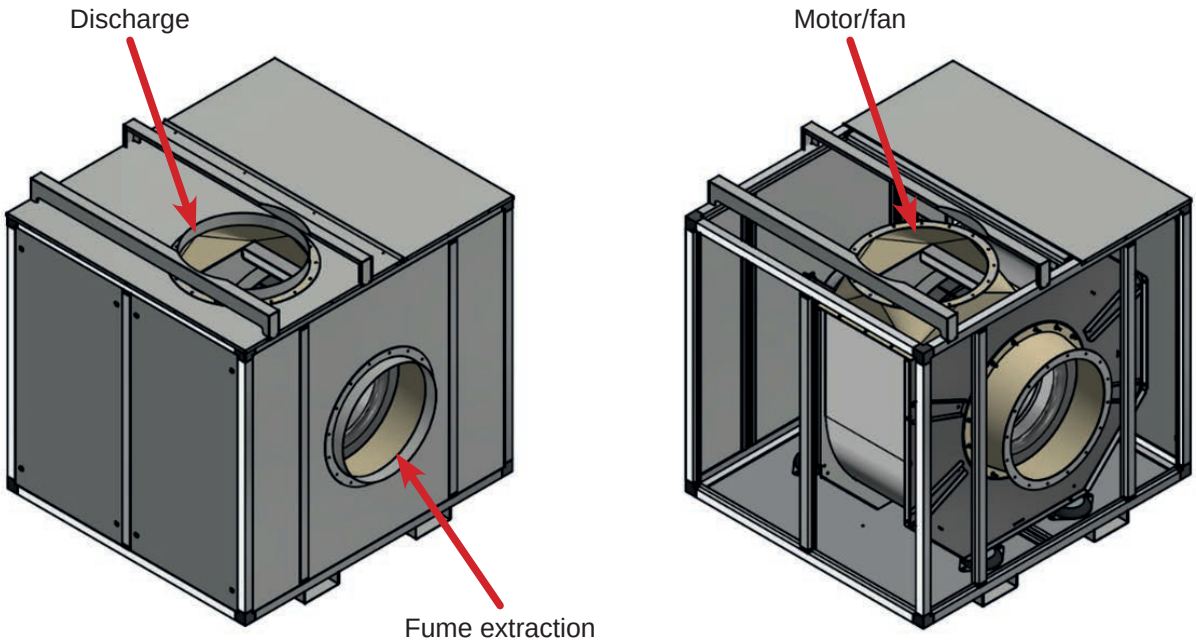
Variant with rotary dischargers instead of dust containers.



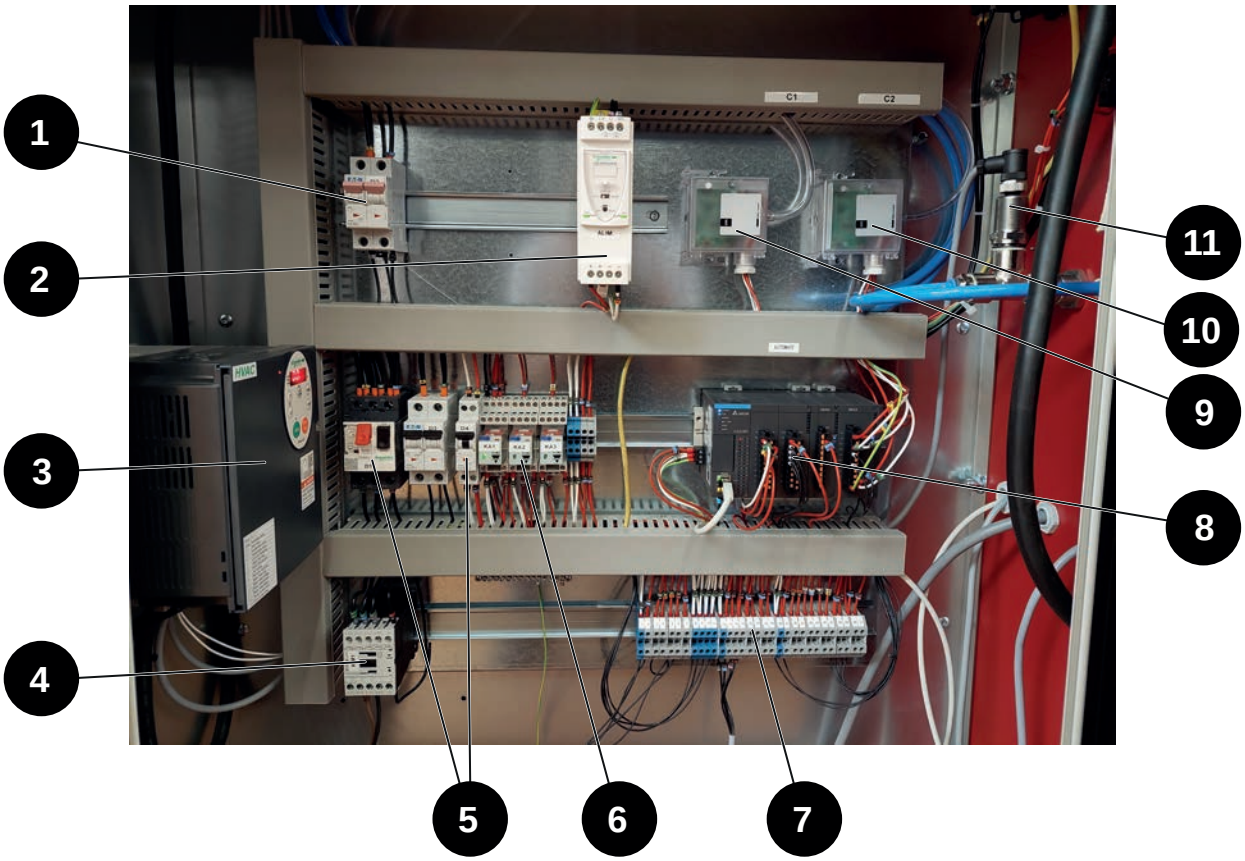
Extraction components



Fan box

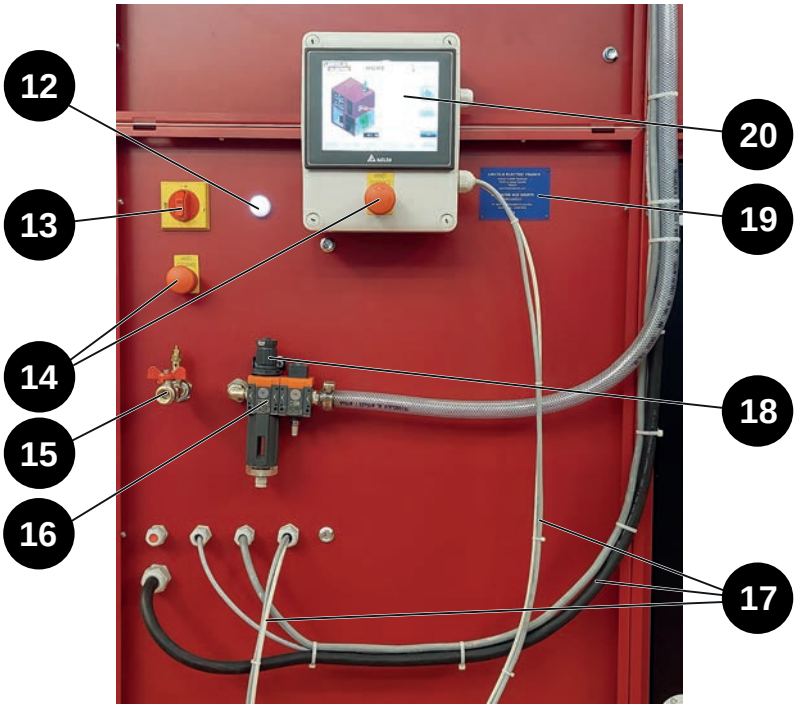


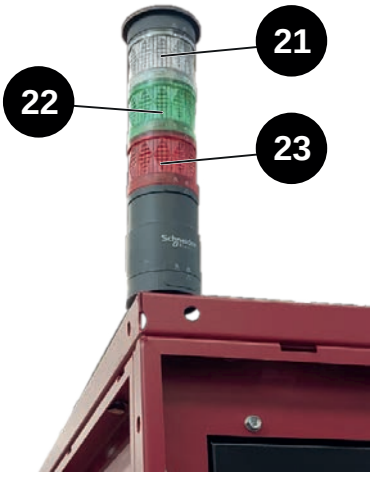
3.2 Composition of the electrical cabinet



1	Circuit breaker
2	400/24V power supply
3	Variable frequency drive
4	Motor contactor, KM1
5	Circuit breakers
6	Relay
7	Connecting terminal block
8	Programmable logic controller
9	C1 - System vacuum switch
10	C2 - Fan vacuum switch
11	Compressed air pressure switch

3.3 Description of external unit components

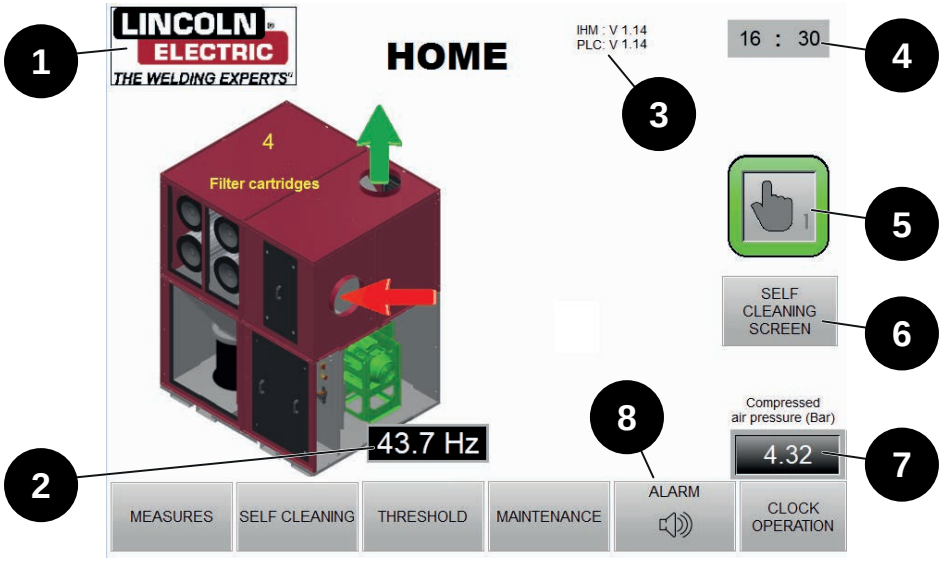




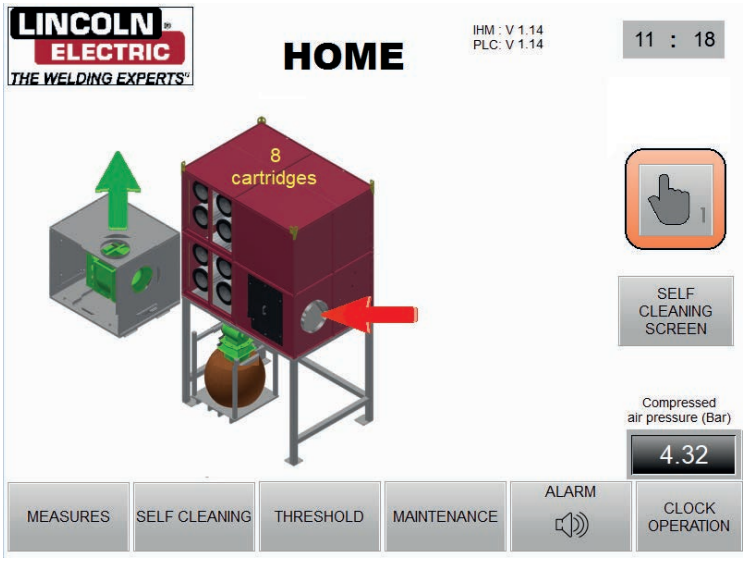
12	Power on indicator
13	Main disconnector
14	Emergency stops
15	Compressed air purge
16	Oil separator pressure reducer filter Ø 16 mm connection
17	HMI interface cables and power cables to be separated from each other
18	Compressed air pressure adjustment
19	Identification plate
20	Control HMI interface
21	White: Filter live
22	Green: Filter operating
23	Red: Filter fault --> Check the error messages on the Alarms page of the HMI; or on the variable drive screen inside the electrical cabinet

4 - Description of the HMI screen: Home page

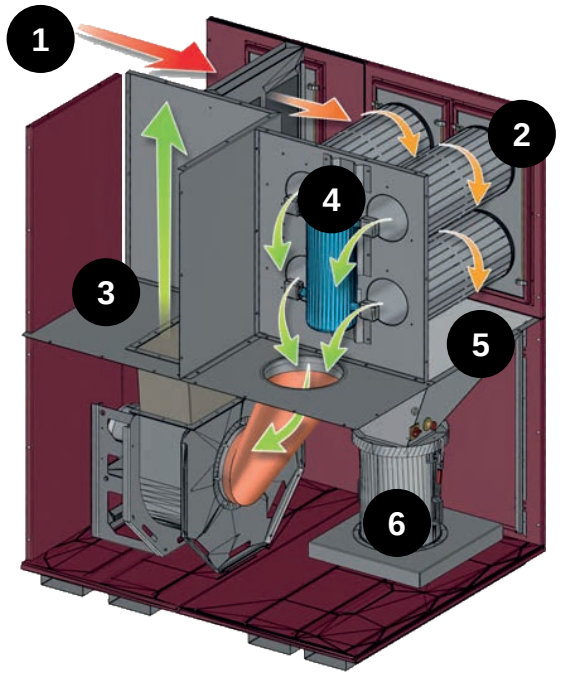
Example for a DIGIFILTER 4CD with dust containers



Example for a DIGIFILTER 8CD with rotary discharger



1	Access to configuration settings
2	Operating frequency
3	Program versions for the HMI and PLC
4	Date and time setting
5	Operating mode: • Manual • Weekly clock • Automatic
6	Unclogging screen (circled in green if active)
7	Compressed air pressure
8	Fault management



Operating principle of the unclogging filter	
1	At the unit inlet, polluted air flows through metal pre-filters that keep incandescent particles out of the filtration area.
2	The polluted air is then distributed in the filtration area and flows through filter cartridges that purify the air up to 99.9%.
3	The filtered air is driven out into the expansion chamber and discharged outdoors
4	The filter cartridges are unclogged by a strong surge of air inside the cartridges
5	The dust driven out of the cartridges falls into the recovery hopper
6	The waste is removed using the dust containers*

Depending on the regulations in the relevant country, the filtered air may be recycled in the workshop.

If indoor recycling is not possible, such as in France, a heat exchanger may be put in place to reduce energy costs relating to the replacement of the expelled air.
The filtered air could thus be put to even better use.

* as an option, rotary dischargers with bulk bags may be installed instead of dust containers.

The filter cartridges are replaced from the polluted air side of the filter, which rules out any pollution on the clean air side by dust remaining on the cartridges. (See instructions for the replacement of filter cartridges).

5.1 Features

The **DIGIFILTER** extraction unit has a touch screen HMI, which, combined with a PLC, makes it possible to gather all the controls and the display of values in real time.
The unit may be controlled according to three operating modes: manual/automatic/clock.
Variable flow operation (system with multiple sensors), or with flow regulation (cutting table application).
Real-time monitoring of the system vacuum at the extraction unit inlet, the pressure difference due to fouling of the filter cartridges, fan power consumption, fan operating frequency, and compressed air pressure of unclogging cylinders.
Programming of a weekly working time. Management of the maintenance of the extraction unit with information about the number of hours of use, filter cartridge replacement, fan maintenance, emptying frequency of dust containers.

5.2 Specificities of the **DIGIFILTER** *extraction unit*

ICP function

For smart, cost-effective and environmentally-friendly use, the **DIGIFILTER** may be fitted with an ICP function. This function allows finer and more advanced management of the working of the extraction unit, particularly with:

- a variable frequency drive,
- the possibility to regulate the extraction rate in relation to a fixed setpoint,
- the possibility to operate with a variable rate depending on the number of open sensors,
- real-time display of the main system vacuum settings at the filter inlet, filter cartridge pressure difference, fan power consumption, operating frequency etc.

Saturation alarm

The **DIGIFILTER** is fitted with an alarm system that monitors the filter saturation status.
The pressure difference through the cartridges is continuously monitored. When the boundary value of the pressure difference is reached (700Pa by default), a safety indicator on the HMI screen is displayed and a fault is recorded. In that case, the metal pre-filters and filter cartridges must imperatively be inspected.

Process efficiency control alarm associated with the ICP function

The **DIGIFILTER** continuously monitors the vacuum at the filter inlet and outlet. The information measured is displayed in Pascal on the Measurements screen of the HMI. If the permitted values are exceeded, the screen displays a min or max process efficiency fault and the Out of Order sign. That major malfunction must be remedied to retain the efficiency of the **DIGIFILTER**.

Online cleaning at a programmed threshold

The pressure difference through the cartridges is continuously monitored. When the difference exceeds the permitted negative pressure limit, the cartridge cleaning cycle starts.
Once cleaning is complete, a check validates or not the negative pressure after cleaning.
If the vacuum drops below the boundary value, the online unclogging cycle stops; otherwise, a new cleaning cycle restarts.
This cycle makes it possible to extend the life of cartridges. When the cycle no longer makes it possible to achieve the normal operating value, that means that the cartridges must be changed imperatively.
The benefits of this mode are:

- Reduced cartridge wear and tear
- Reduced air consumption
- Reduced maintenance
- Constant head loss in the filter
- Reduced noise

Offline cleaning

This system makes it possible to clean the cartridges when the fan stops, and allows deep regeneration of cartridges. The number of cycles can be programmed in the Unclogging page of the HMI. A number of 1 to 9 cycles is recommended.
This type of cleaning is required with all applications and guarantees the proper working of the installation.
By back blowing the cartridges with an air flow and shock wave combination, most of the particles are driven out of the cartridges and fall into the recovery hopper and dust container.

5.3 Unclogging operating cycle chart

Filter cartridge unclogging operates with the help of two digital vacuum sensors, C1 and C2.
For the proper working of the extraction unit and for maintaining satisfactory extraction values, it is essential for the cleaning (unclogging) cycle to be carried out.

Two operating modes can be selected for the online unclogging of cartridges (with the fan operating):

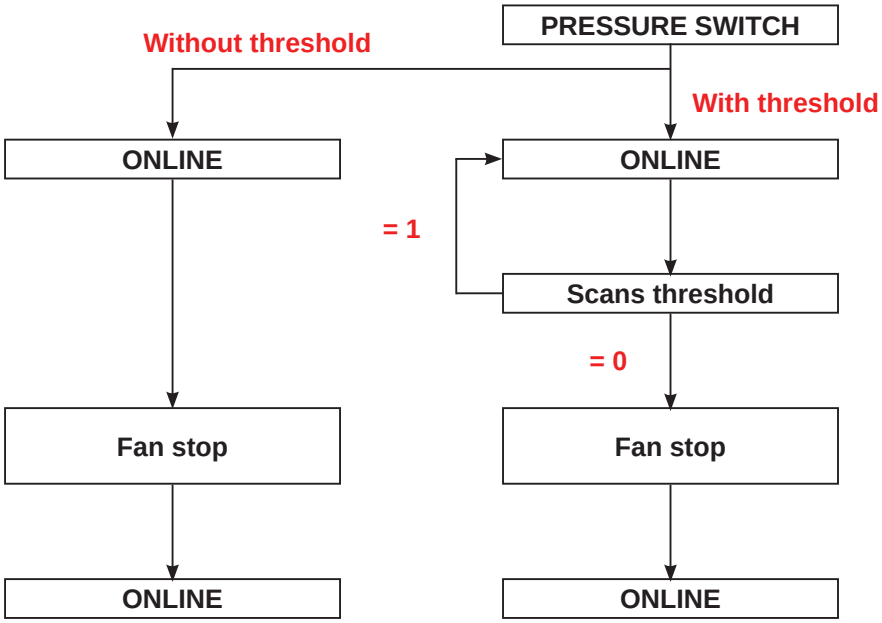
- **Permanent online unclogging (no threshold):**
  Online unclogging cycle when the fan is operating.
  Online unclogging is permanent and is timed in accordance with the settings on the Unclogging page of the HMI.

- **Online unclogging with threshold:**
  Online unclogging cycle during fan operation according to a preset saturation threshold (700 Pa).
  When the saturation threshold is reached, the Online unclogging cycle starts.
  The unclogging time always depends on the number of cycles set; however, when the cycle is complete, if the head loss of the cartridges has not dropped below the saturation level, a new cycle starts.

Offline unclogging:
Offline unclogging cycle after the fan has stopped.
Only cycle for the effective cleaning of filter cartridges because it is carried out with the fan halted.
It allows the dust to fall into the dust container by gravity.
The offline unclogging time depends on the number of filter cartridges and the number of cycles, as set on the Unclogging page of the HMI.

* in units fitted with rotary dischargers, the rotary dischargers operate at the same time as offline unclogging.
An additional delay of 10 minutes is started after the end of the offline unclogging cycles to make sure that the dust has been removed to the bulk bags.

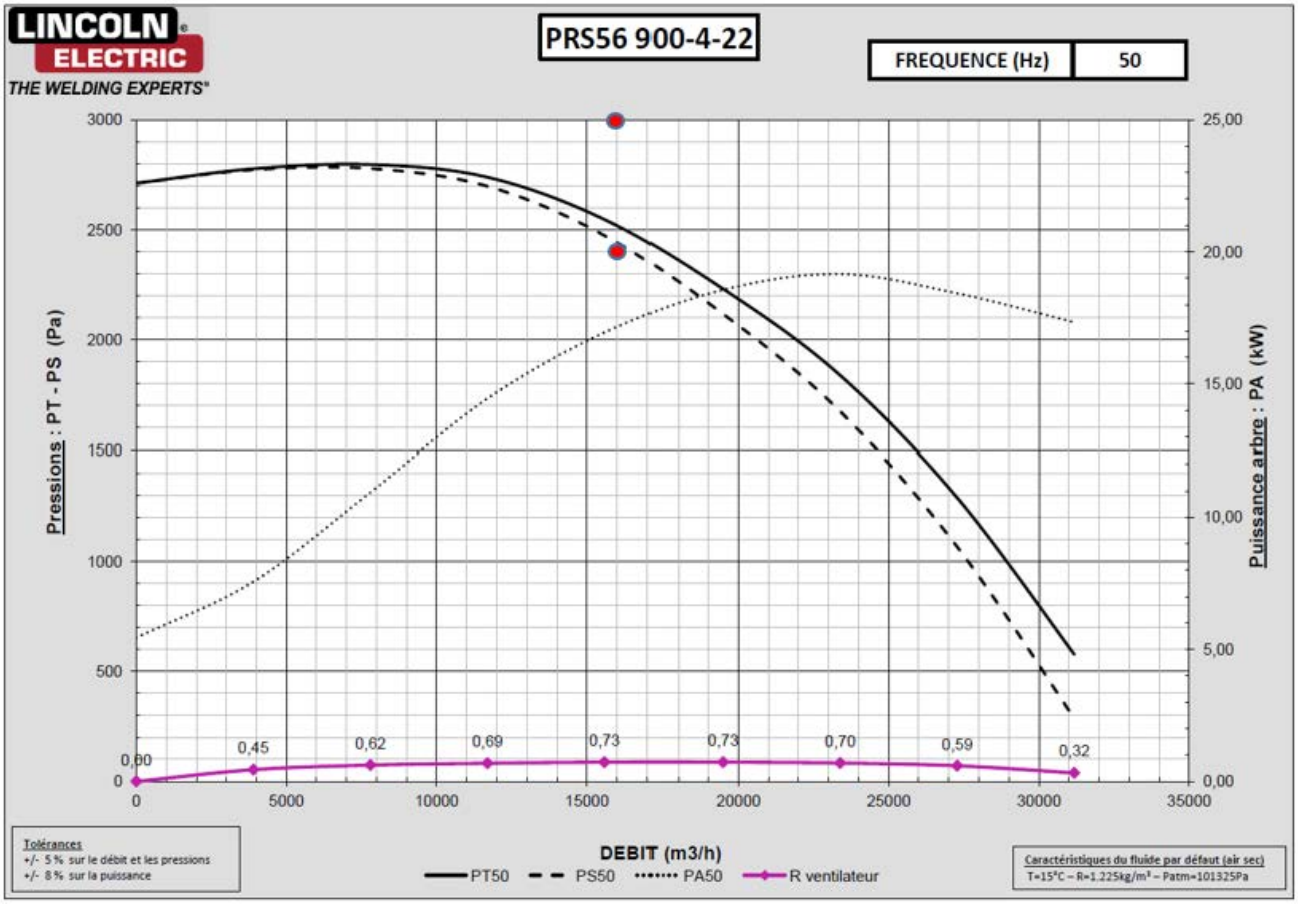
The offline unclogging cycle must necessarily be followed.
- The extraction unit must not be shut down before the end of the cycle.
- The system compressed air must not be switched off before the end of the cycle.
- The dust removal cycle of the rotary dischargers must be allowed to take place.



6.1 DIGIFILTER 16CD

Type	Centrifugal fan, PRS56 900 – 4 – 22
Power	22 kW
Operating point	16000 m³/h at 2400 Pa at 50 Hz 16000 m³/h at 3000 Pa at 55 Hz
Voltage	400V/230V
Frequency	50Hz
Rotation speed	1450 rpm
Noise	76.7 dB (free field)
Fan inlet Ø	630 mm

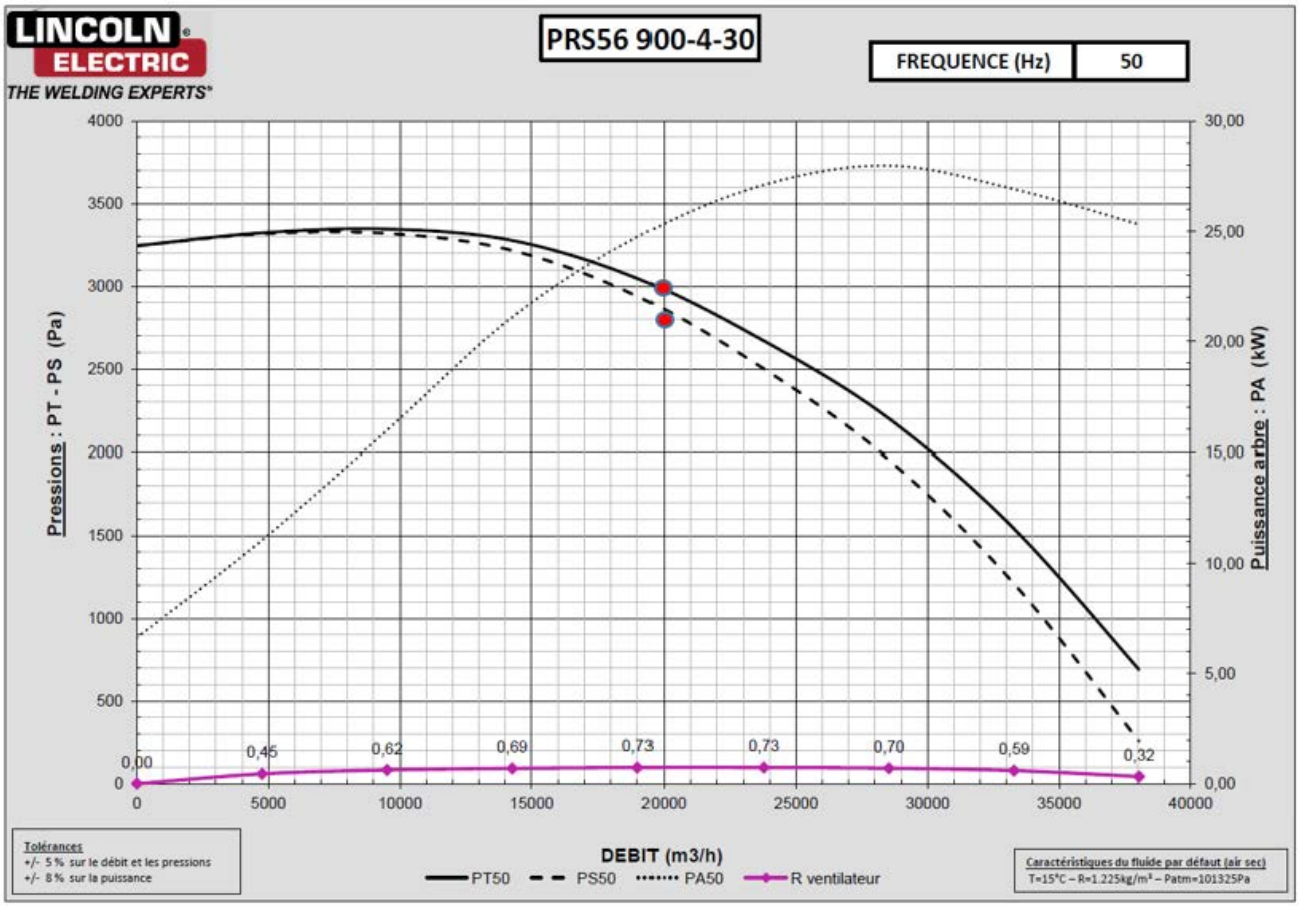
Fan, PRS56 900 - 4 - 22 kW



6.2 DIGIFILTER 20CD

Type	Centrifugal fan, PRS56 900 – 4 – 30
Power	30 kW
Operating point	20000 m³/h at 2800 Pa at 50 Hz 20000 m³/h at 3000 Pa at 55 Hz
Voltage	400V/230V
Frequency	50Hz
Rotation speed	1450 rpm
Noise	77.7 dB (free field)
Fan inlet Ø	710 mm

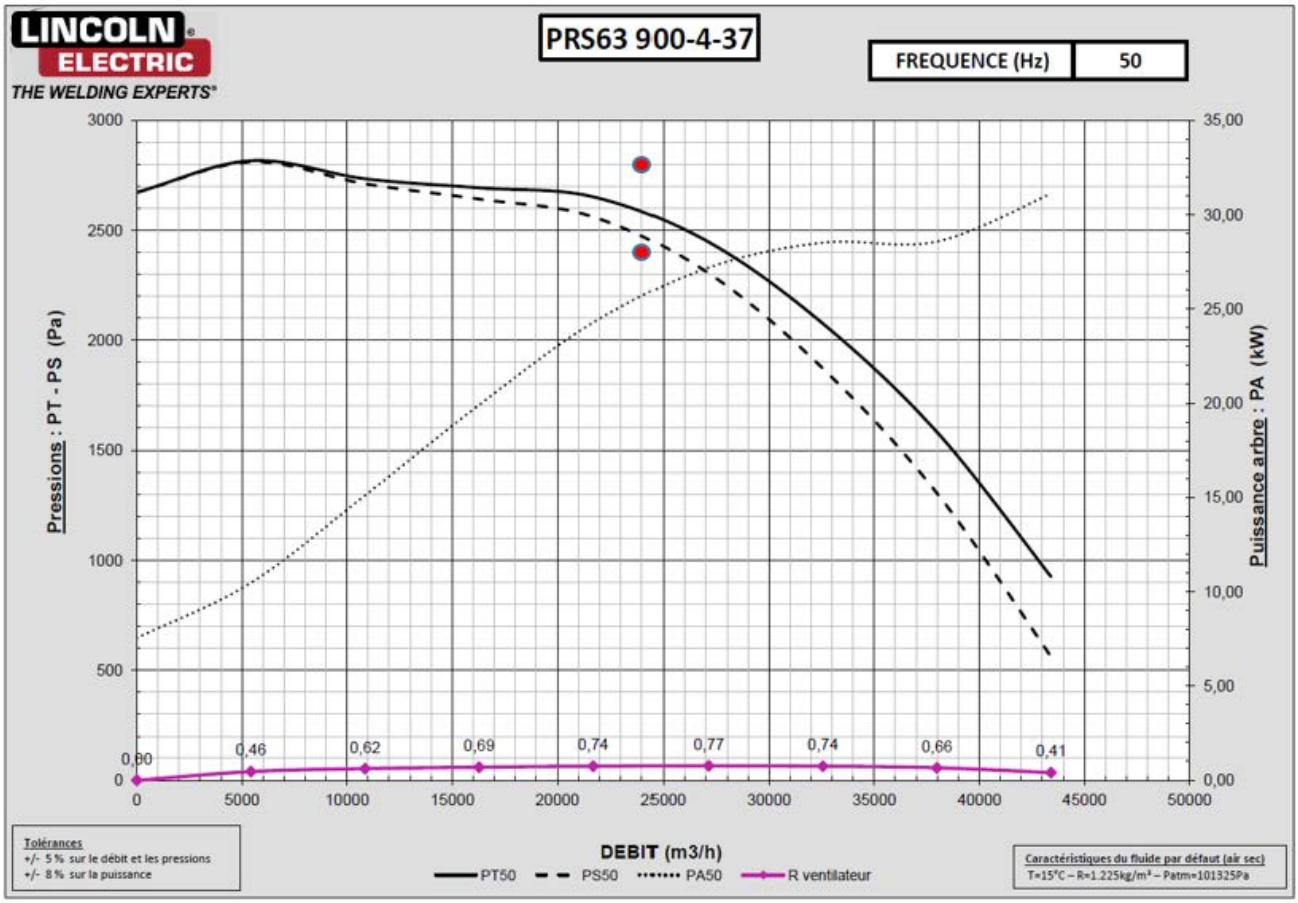
Fan, PRS56 900 - 4 - 30 kW



6.3 DIGIFILTER 24CD

Type	Centrifugal fan, PRS63 900 – 4 – 37
Power	37 kW
Operating point	24000 m³/h at 2400 Pa at 50 Hz 24000 m³/h at 2800 Pa at 50 Hz
Voltage	400V/230V
Frequency	50Hz
Rotation speed	1450 rpm
Noise	78.8 dB (free field)
Fan inlet Ø	800 mm

Fan, PRS63 900 - 4 - 37 kW



1 - Installation conditions

The machine must be located in accordance with safety standards to keep personnel safe.

Arrangement of cables and hoses
The customer must provide a means to support and protect cables and flexible hoses from mechanical, chemical or thermal damage.

2 - Floor preparation

Installing the **DIGIFILTER** does not require any particular floor preparation; however, we recommend the use of concrete, coated material or stabilised pebbles that keep the machine sufficiently stable.

The flatness over the whole of the **DIGIFILTER** may not exceed 0.5%.

Concrete screed in a single stretch made at least 21 days before (standard BAEL 93). The thickness of the screed and its reinforcement are given for guidance, and must be verified depending on the characteristics of the floor.

Single concrete strip. 20 Mpa (350 kg/m³) concrete with metal reinforcement.

3 - Assembly

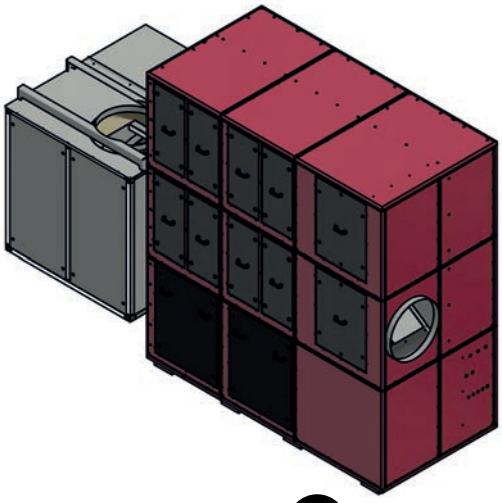
The **DIGIFILTER** filter is supplied in a single piece; you only need to place it in the desired location in the workshop or outside the building.

The filter can be handled with a lift truck thanks to the fork spaces provided under the frame.

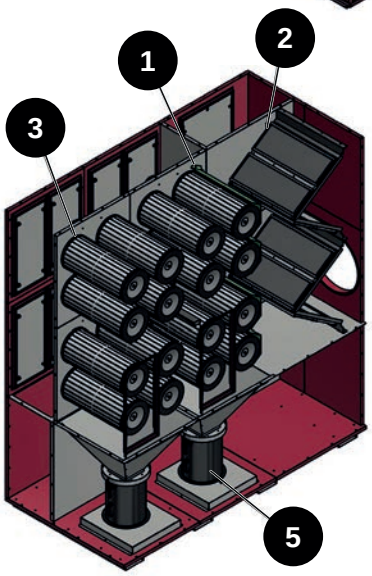
4 - Dimensions and location

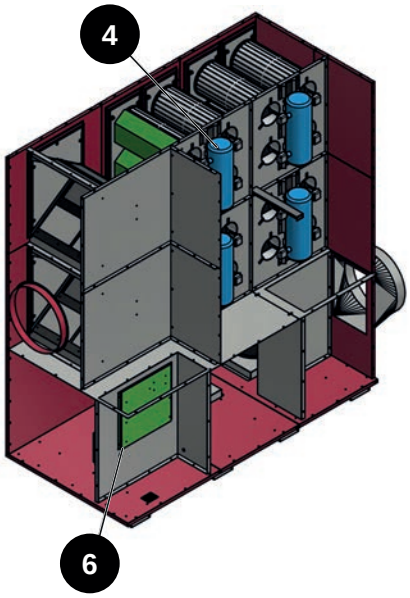
- The clearance required for opening the doors for maintenance work is 600mm.
- A 1000 mm technical area over the perimeter of the unit must be provided, particularly in the filter change area.
- Connection of the compressed air pressure reducer filter Ø16mm.

Example of a DIGIFILTER 16CD with dust containers

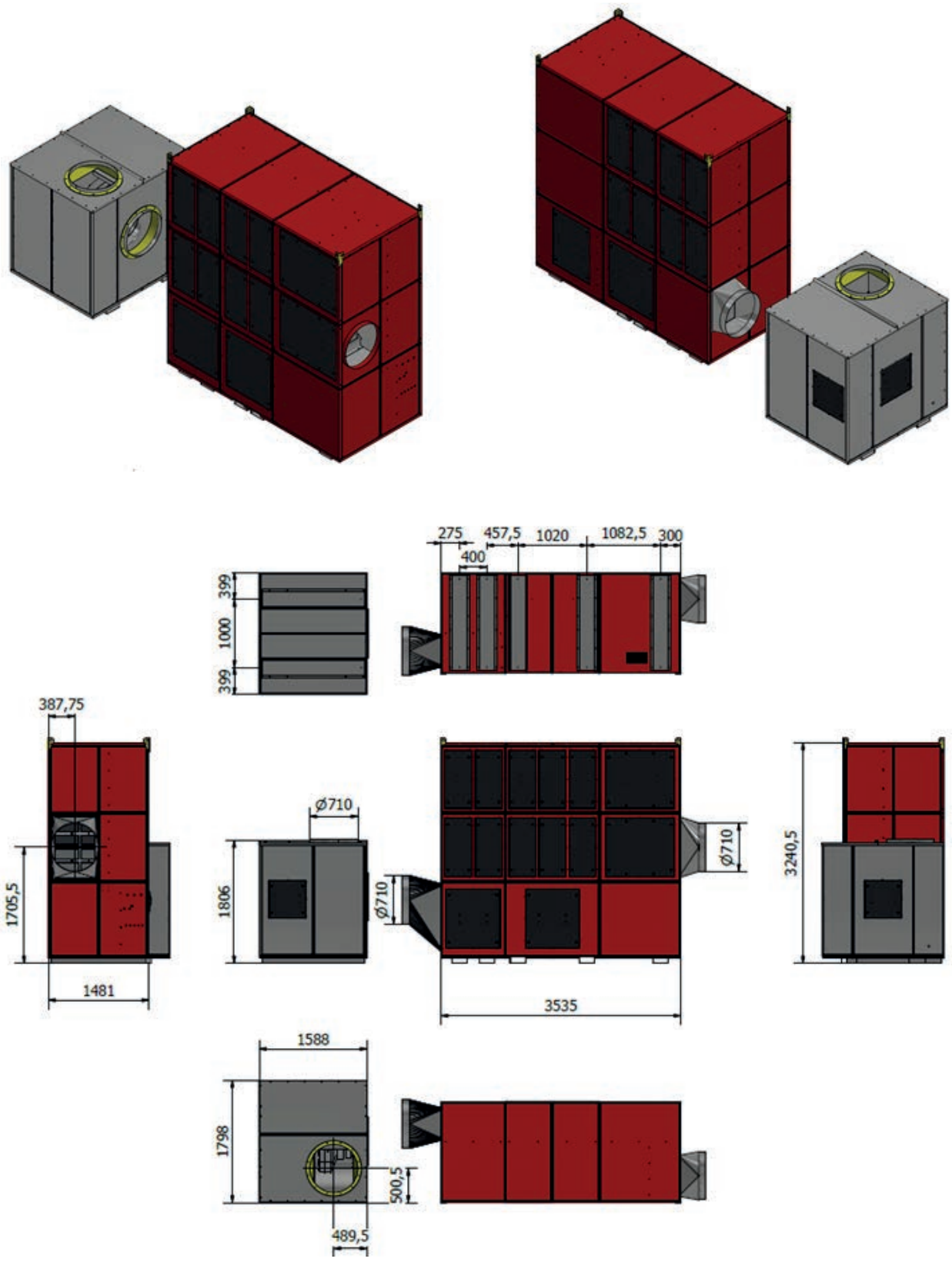


1	Deflector
2	Pre-filter, 800x295x3
3	Filter cartridge
4	Compressed air cylinder + unclogging solenoid valve
5	Dust container
6	Electrical cabinet grille + variable drive





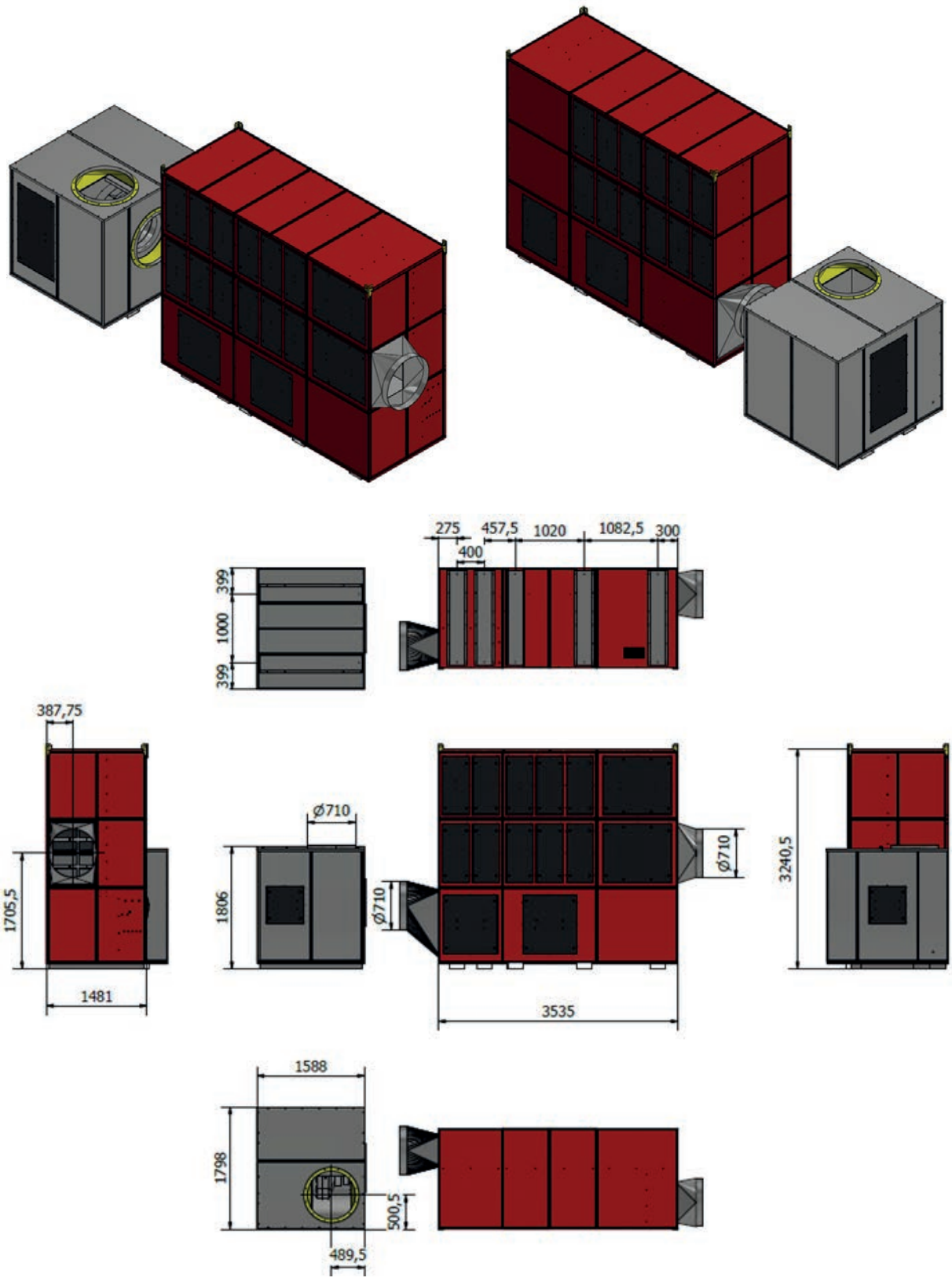
4.1 DIGIFILTER 16CD WITH DUST CONTAINERS



System inlet diameter	630 mm
System outlet diameter	630 mm

Fork centre distance	1020 mm
Weight of unit	3000 Kg

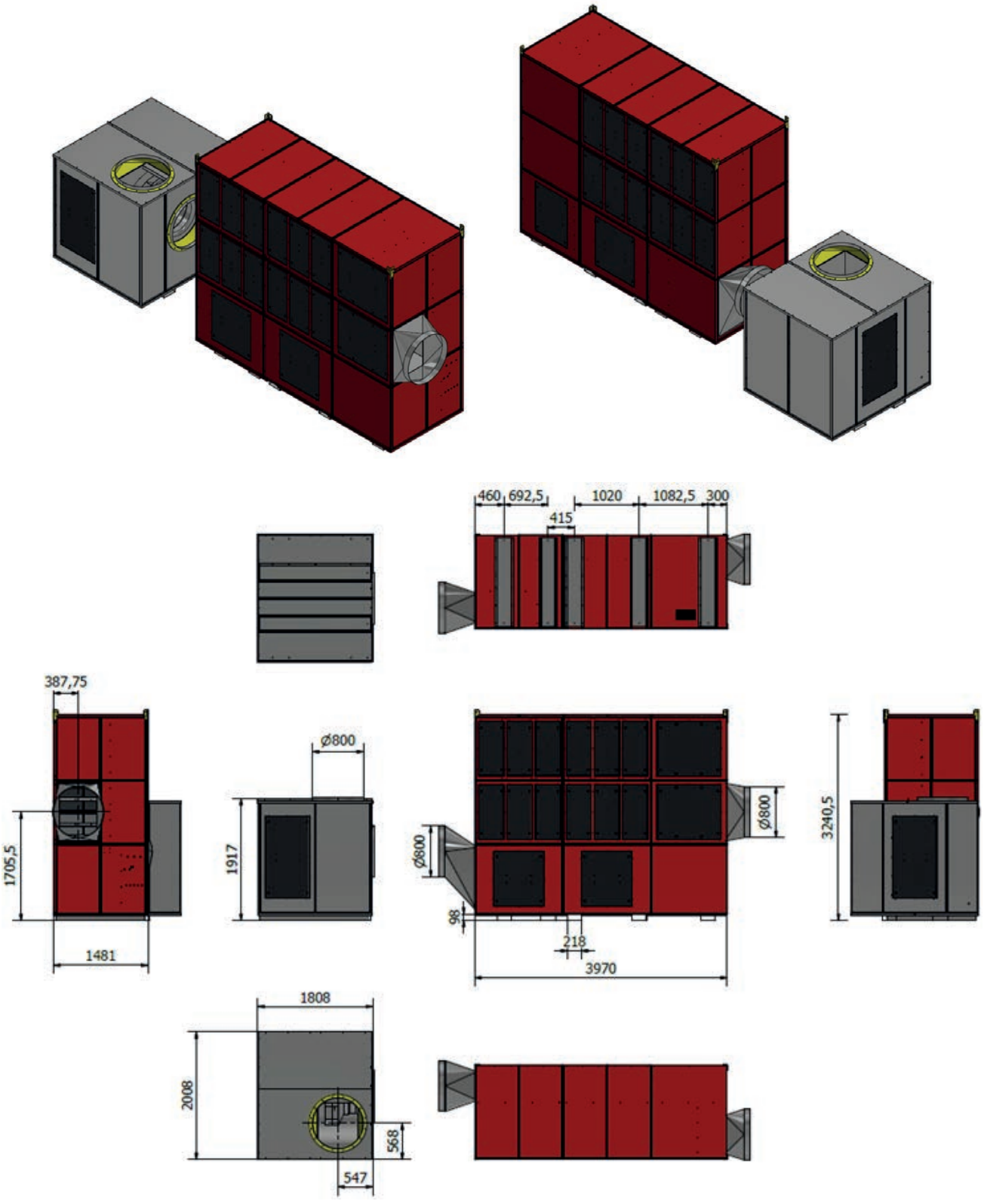
4.2 DIGIFILTER 20CD WITH DUST CONTAINERS



System inlet diameter	710 mm
System outlet diameter	710 mm

Fork centre distance	1020 mm
Weight of unit	3300 Kg

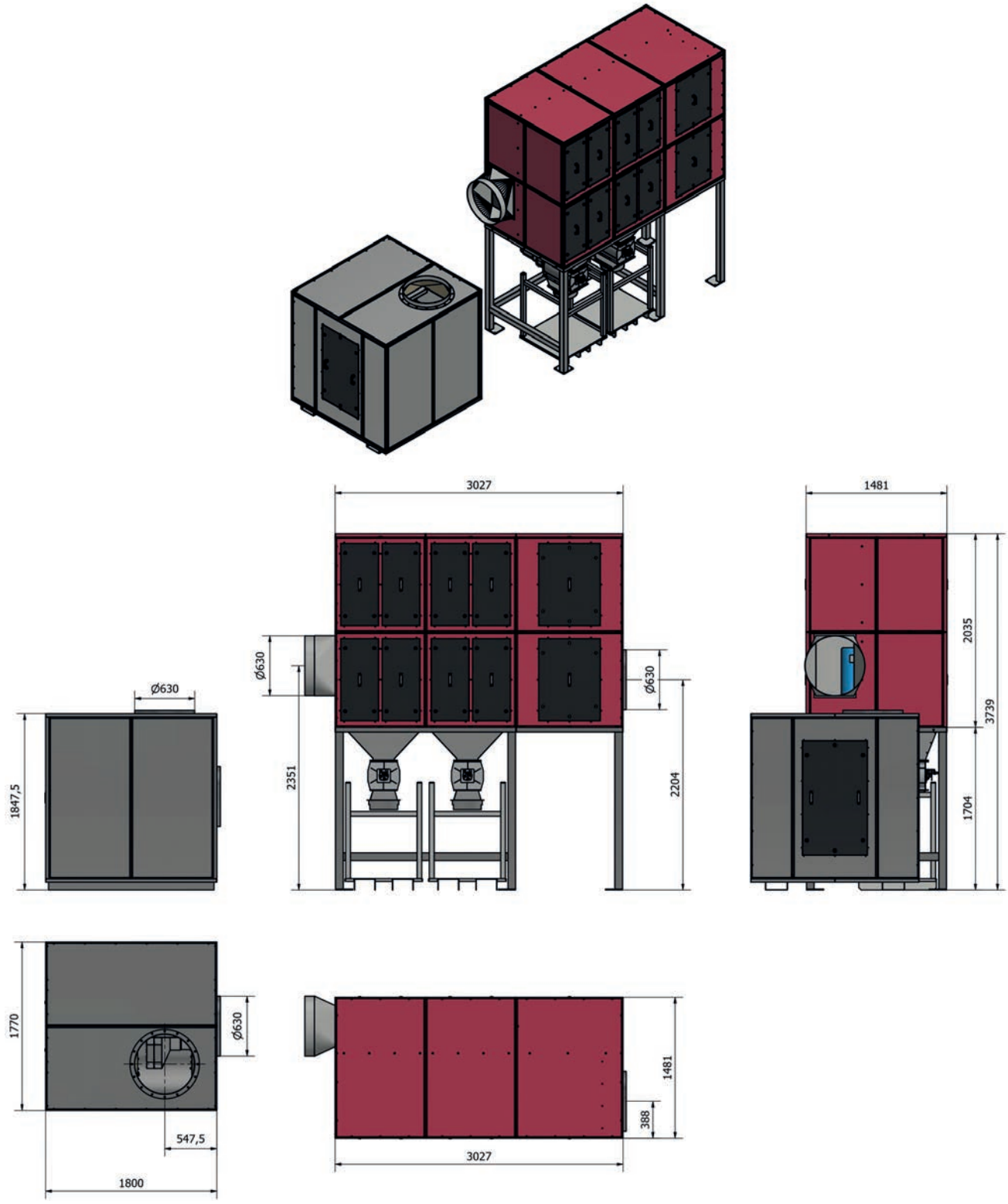
4.3 DIGIFILTER 24CD WITH DUST CONTAINERS



System inlet diameter	800 mm
System outlet diameter	800 mm

Fork centre distance	1020 mm
Weight of unit	3600 Kg

4.4 DIGIFILTER 16CD WITH ROTARY DISCHARGERS



System inlet diameter	630 mm
System outlet diameter	630 mm
Weight of unit	2800 Kg

5.1 Assembly of DIGIFILTER with dust containers

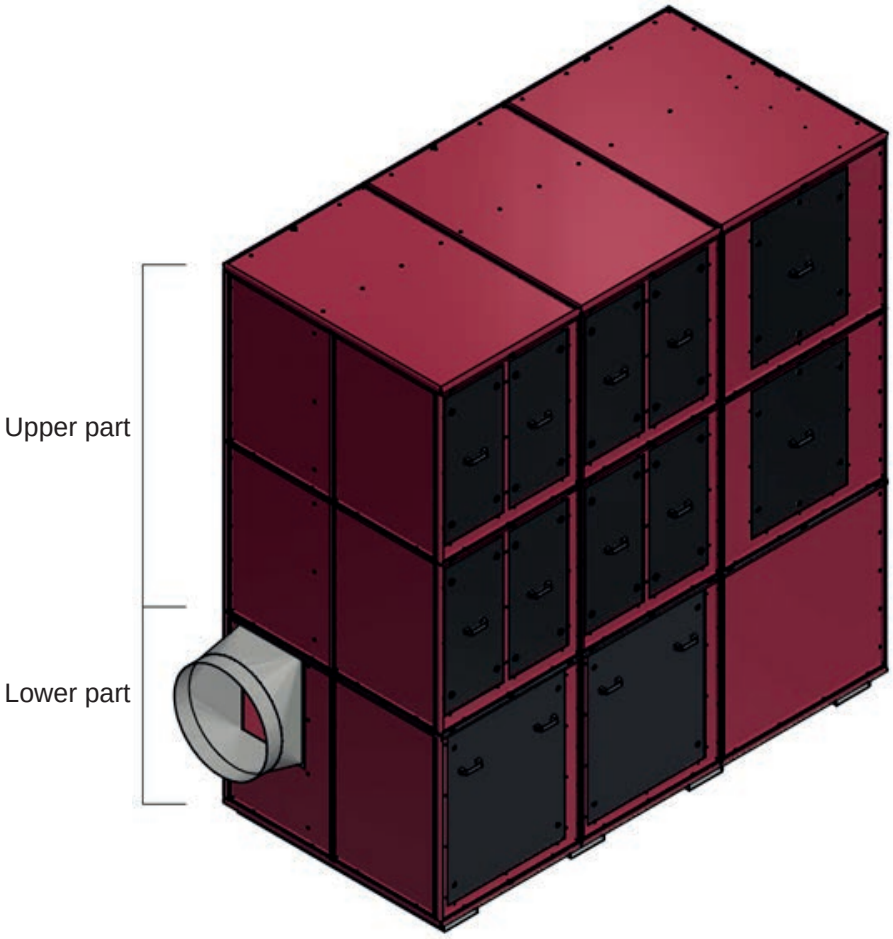
The filter is delivered in several parts:

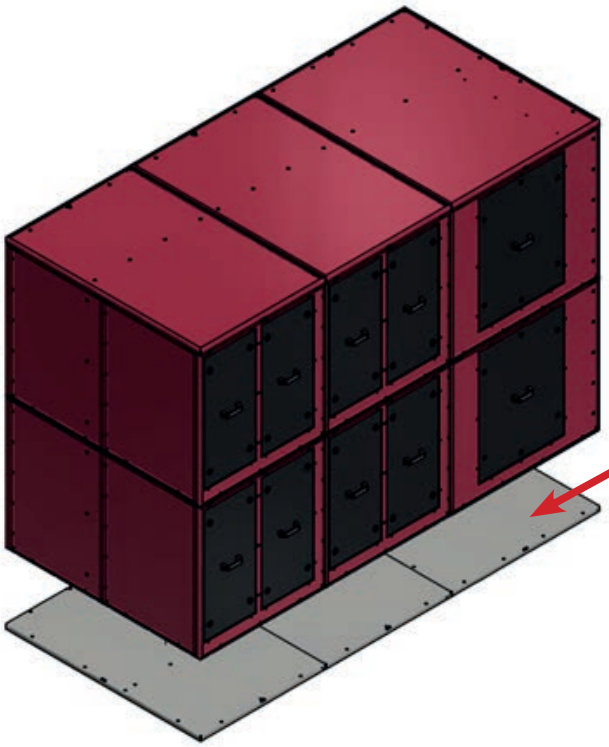
- Two elements for the filtration unit, and
- A motor box for extraction.

Assemble the elements of the extraction unit as instructed in the drawings below.

For the best possible air flow efficiency, place the filtration unit and the fan box so that the distance and number of bends is as small as possible in the connection to the duct.

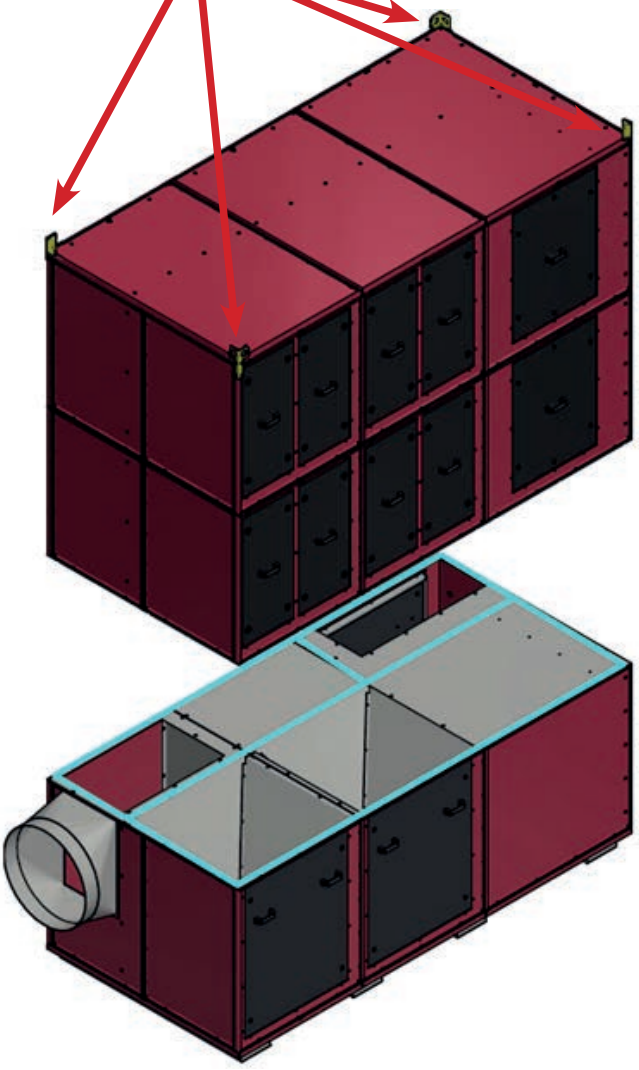
The lower part of the extraction unit and fan box can be handled using a lift truck thanks to the fork pockets provided under the frames.
The upper part of the extraction unit can be handled using the four slinging brackets to screw to the four upper corners of the unit.





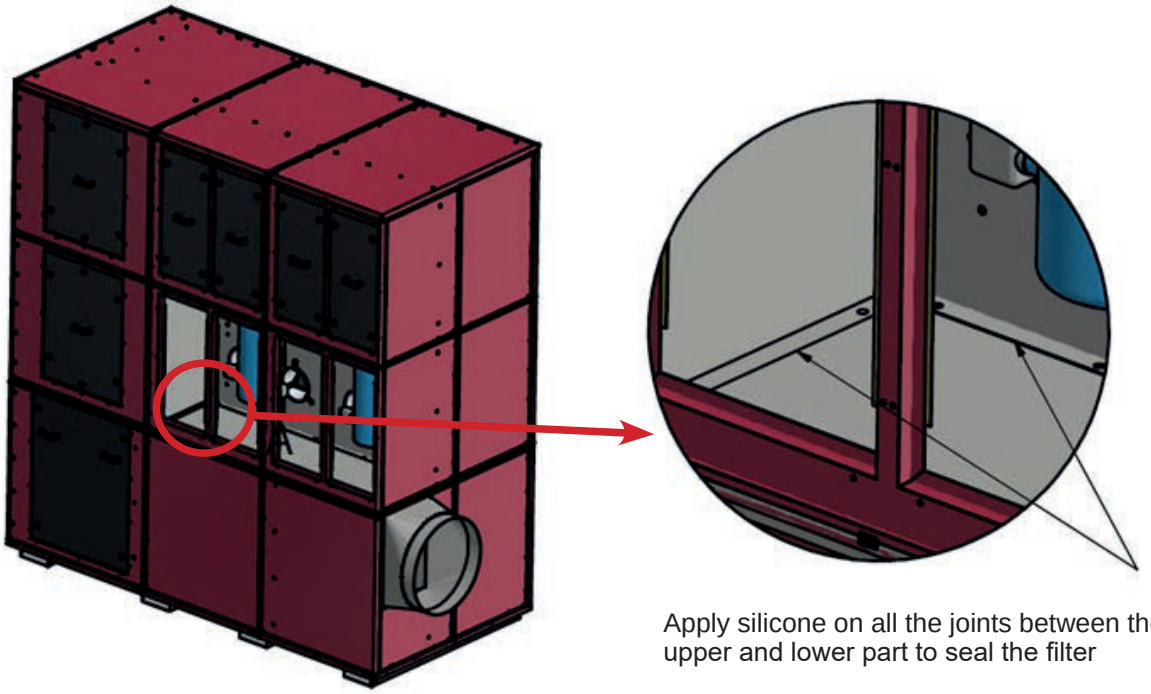
Remove the retaining frames under the upper part of the filter

Slinging eyes

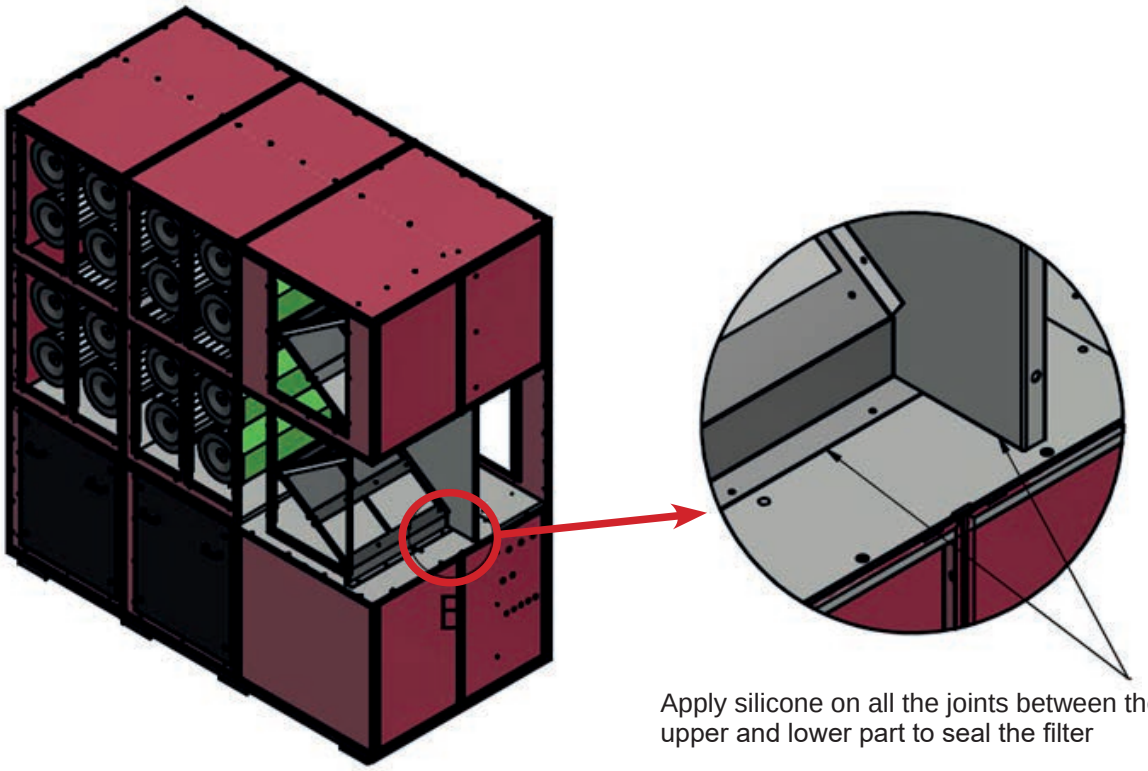


1 - Apply foam seal on all the contact surfaces between the upper and lower parts of the filter represented by the blue lines.

2 - Assemble the upper part on the lower part of the filter with the supplied screws



Apply silicone on all the joints between the upper and lower part to seal the filter



Apply silicone on all the joints between the upper and lower part to seal the filter

5.2 Assembly of DIGIFILTER with rotary dischargers

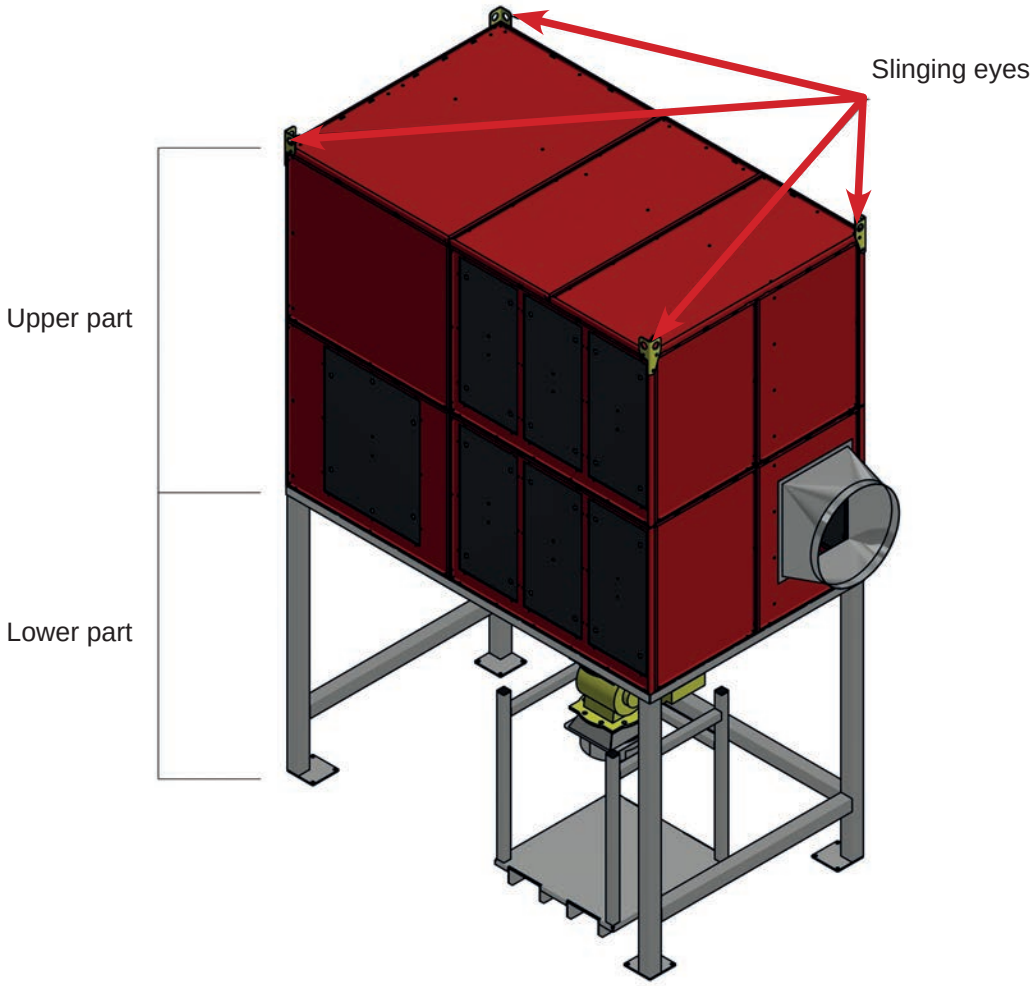
The filter is delivered in several parts:

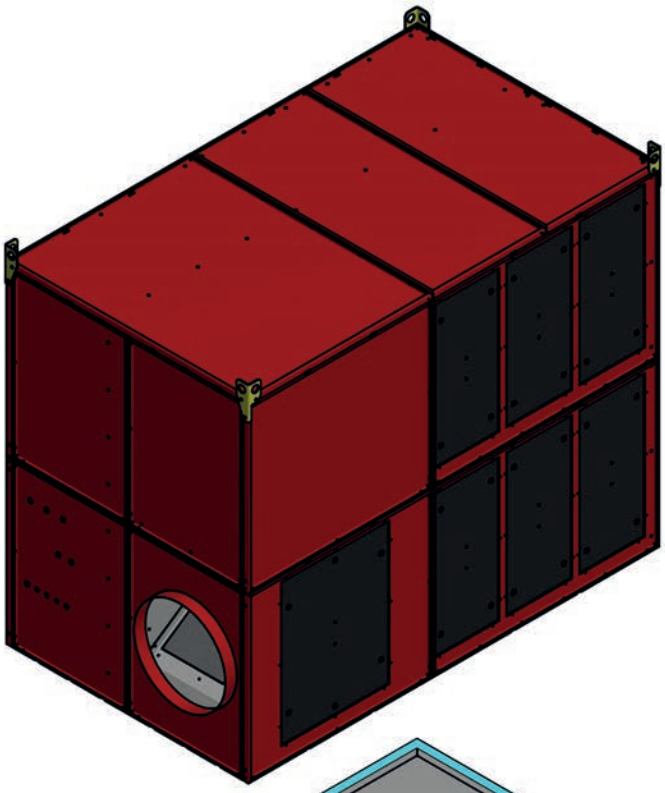
- one or two upper elements for the filtration unit
- a lower frame fitted with rotary dischargers for the waste removal part
- a motor box for extraction.

Assemble the elements of the extraction unit as instructed in the drawings below.

For the best possible air flow efficiency, place the filtration unit and the fan box so that the distance and number of bends is as small as possible in the connection to the duct.

The lower part of the extraction unit and fan box can be handled using a lift truck thanks to the fork pockets provided under the frames.
The upper part of the extraction unit can be handled using the four slinging brackets to screw to the four upper corners of the unit.

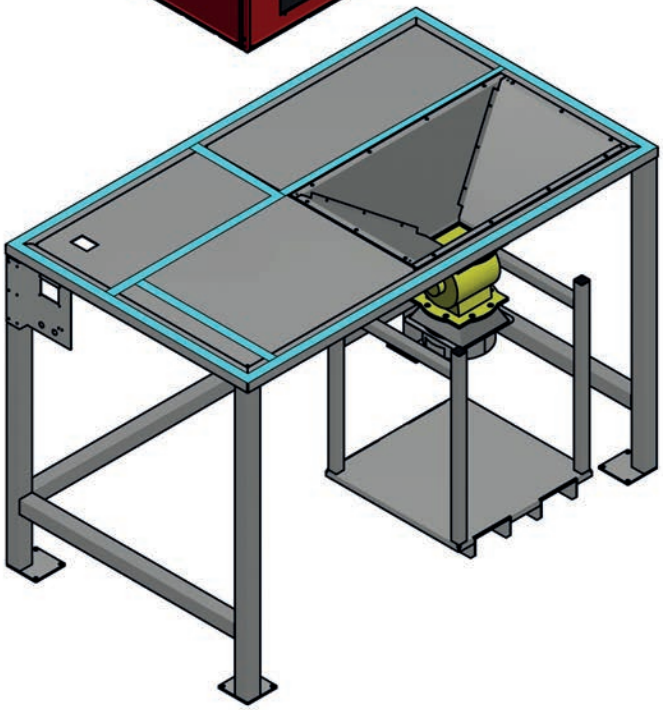




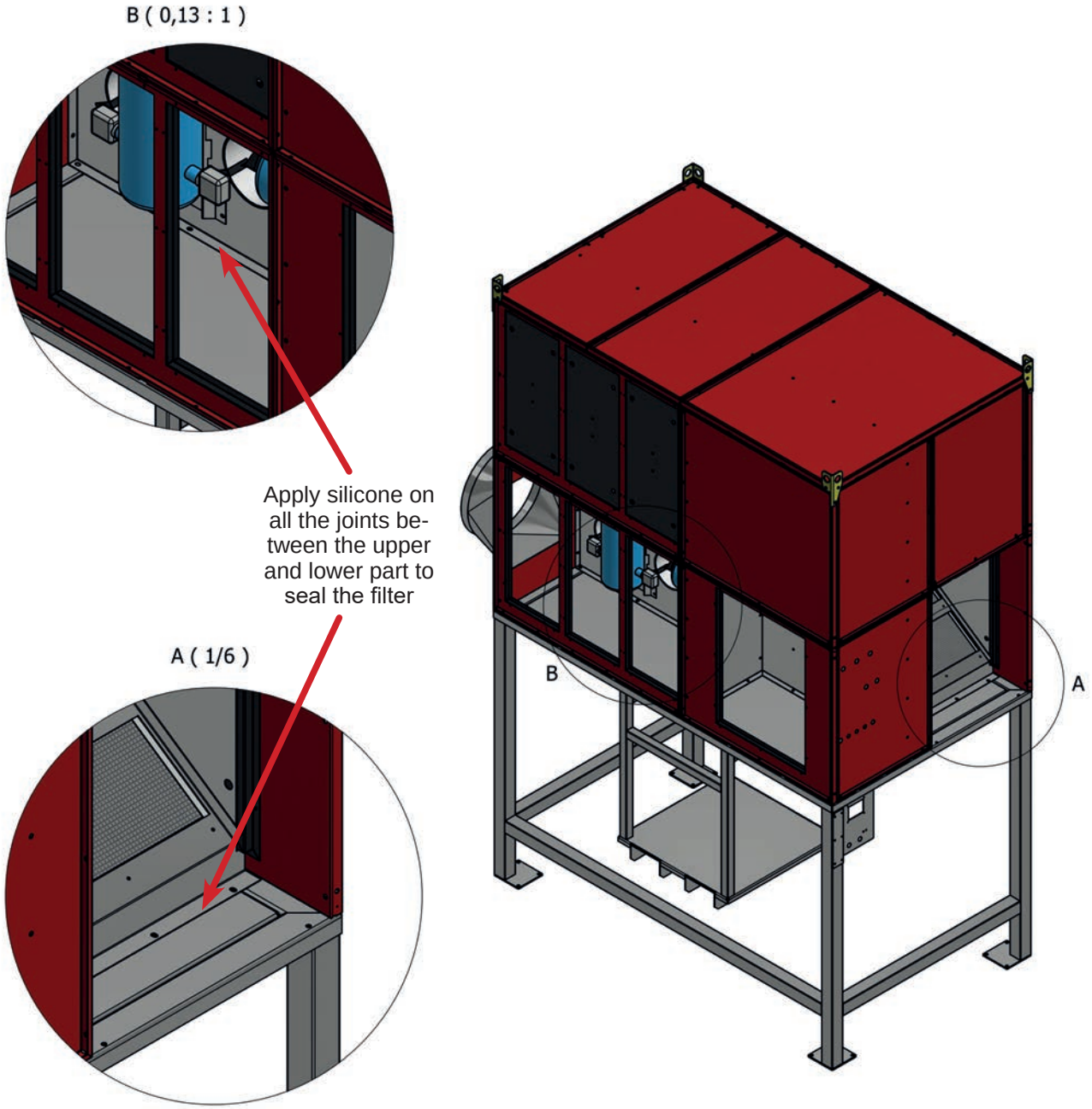
2 - Assemble the upper part on the lower part of the filter with the supplied screws.

☛The rotary discharger must be located under the filter cartridges

3 - Route the cables in the passage provided to make the required connections in the junction box placed on the frame.



1 - Apply foam seal on all the contact surfaces between the upper and lower parts of the filter represented by the blue lines


B (0,13 : 1)
Apply silicone on all the joints between the upper and lower part to seal the filter
A (1/6)
B
A

6 - Step-by-step starting of the DIGIFILTER

For complete and easy starting up, here is the order in which the different key phases must be carried out:

- Electrical connection of the power supply to the 400 V three phase system
- Pneumatic connection of the oil separator pressure reducer.
- Connection of the remote control with the HMI screen.
- Electrical connection with the cutting machine
- HMI screen setup and configuration.

7 - Connection to the electrical system

- 400V - three phase, no neutral - 50 Hz power supply

All the operations relating to the installation, such as those for assembly, putting into service and maintenance, are to be carried out by qualified personnel under the control of a responsible technician.

The **DIGIFILTER** must **NECESSARILY** be connected when it is isolated from all utility supplies. The disconnection and padlocking of all energy sources is **mandatory**.

Recommendation

Electrical cable part number (kW)	System voltage, 50 Hz 400 V three phase	Part numbers of electrical cables
	Cable section (mm^2)	Part number
4	4 x 2.5 mm^2	W000010100
5.5	4 x 2.5 mm^2	W000010100
7.5	4 x 4 mm^2	W000010101
9	4 x 4 mm^2	W000010101
11	4 x 6 mm^2	W000010102
15	4 x 6 mm^2	W000010102
18.5	4 x 10 mm^2	W000010103
22	4 x 10 mm^2	W000010103
30	4 x 16 mm^2	W000010104
37	4 x 25 mm^2	W000010105
55	4 x 35 mm^2	W000010106

7.1 Electricity supply

The electricity supply is to be connected to the terminals of the main disconnector located on the side panel of the **DIGIFILTER**.
Use a multi-conductor cable and connect the three phases to the three terminals of the disconnector and the earth to the earth bar provided.
The cables must necessarily be protected on the floor, by placing cable channels or ducts

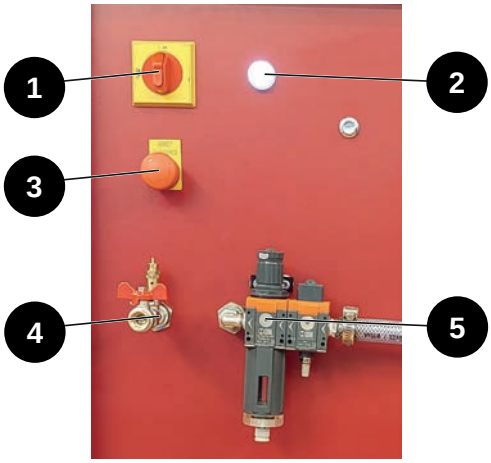
In order to avoid the loss of communication, **the power cable must be separated from the RJ45 control cable** of the HMI screen and the control cable from the cutting machine in the various cable channels.

7.2 Pneumatic connections

The customer must supply a disconnecting valve on the air supply.

The compressed air must be dry, free from impurities or humidity.
For all other information, please contact the technical staff of **LINCOLN ELECTRIC**.

1	Main disconnector
2	Power on indicator
3	Emergency stop
4	Compressed air purge
5	Pressure reducer filter



- Compressed air supply 4.5 Bars
- Compressed air connection: Coupling with inner diameter 1/2” – Diameter 16mm.
- Compressed air consumption: 22-litre tank with air at atmospheric pressure for consumption of 6/7 litres per pulse depending on the adjusted operating pressure.

The supply pipe must be protected by putting in place cable channels or ducts.

7.3 Connecting the stack light

The stack light has three lights:
- White: Filter live
- Green: Filter operating
- Red: Variable frequency drive fault

7.4 Starting up the **DIGIFILTER**

First of all, make sure that all the panels of the extraction unit are shut and locked

Set the main disconnector (located on the side panel) to position 1.
The white power indicator will go on.
The **DIGIFILTER** is now live.

Press the button on the HMI screen, and the fan will start.

Press the button on the HMI screen once again, and the fan will stop.

Check the motor rotation direction.
In order to ensure the right extraction rates and motor consumption, the motor must operate in the same direction as the arrow on its ventilation casing.
If that is not so, invert two of the three supply phases wired between the variable drive and the motor.

Emergency stop:
If there is any safety problem or if an electrical fault is found. The whole installation can be switched off by pressing the emergency stop button. After identifying and solving the problem, reset the emergency stop and follow the procedure given above for starting up.

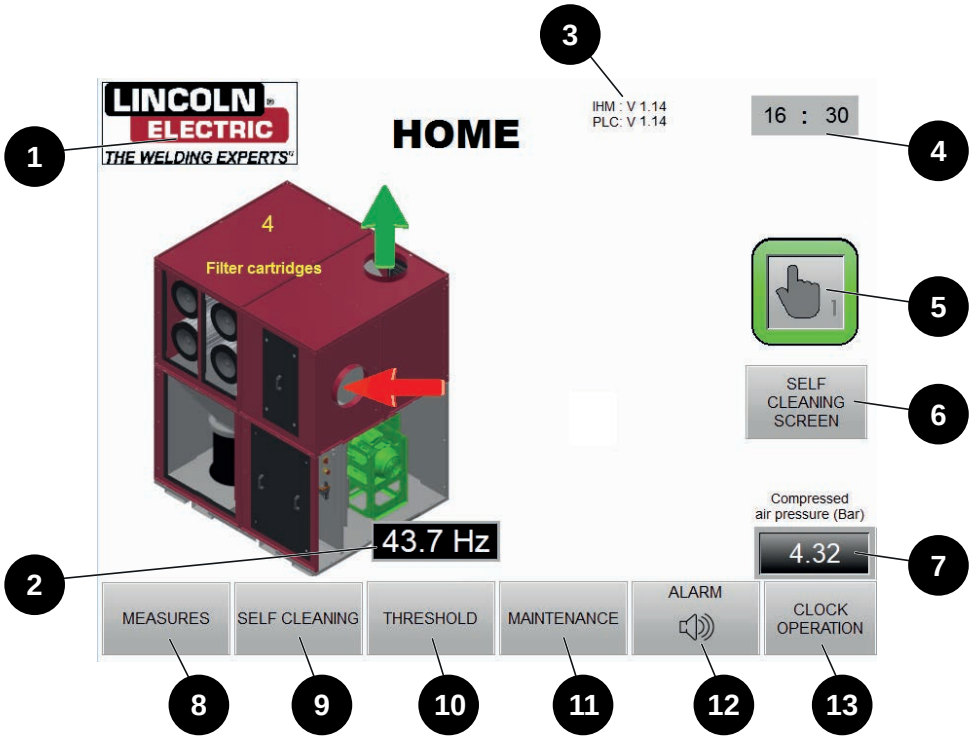
Remote control in automatic mode:
Two operating modes are possible:

- Remote control using an external contact.
- Remote control with pushbutton (self holding)

Refer to the electrical diagram of the extraction system and the machine for the wiring.

1 - Configuration of the HMI screen

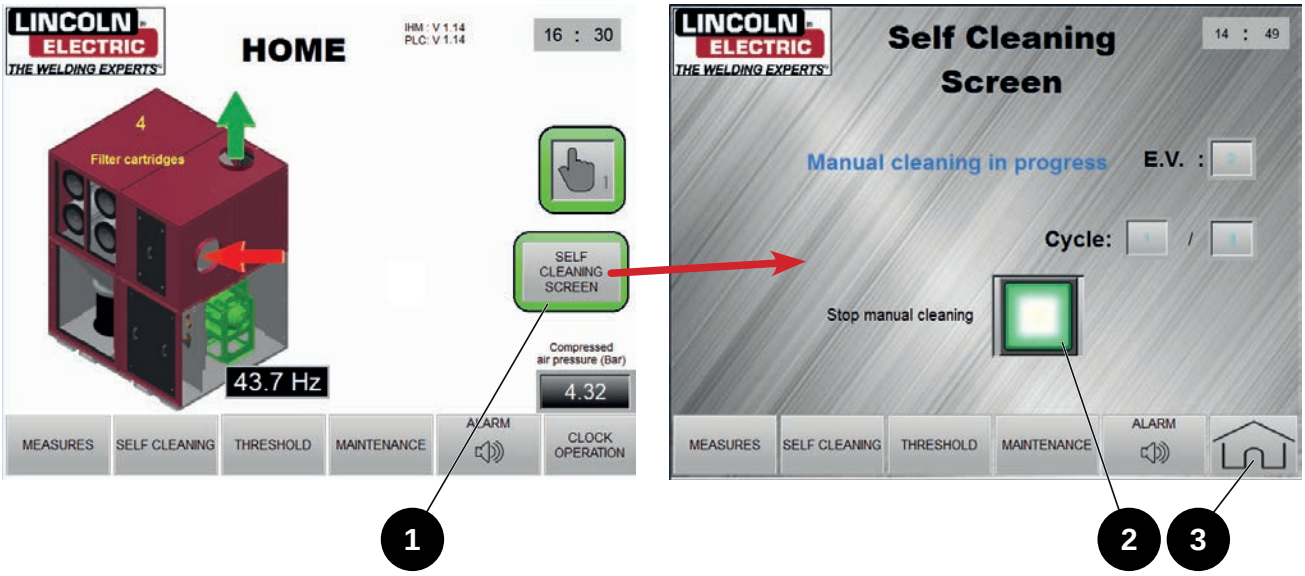
1.1 Home screen



1	Access to configuration settings
2	Operating frequency
3	Program versions for the HMI and PLC
4	Date and time setting
5	Operating mode: • Manual • Weekly clock • Automatic
6	Access to the Unclogging screen (circled in green if active)
7	Compressed air pressure
8	Access to the Measurements screen
9	Access to the Unclogging adjustment screen
10	Access to the Threshold adjustment screen
11	Access to the Maintenance adjustment screen
12	Access to the Alarms screen
13	Access to the Clocks screen

1.2 Unclogging display screen

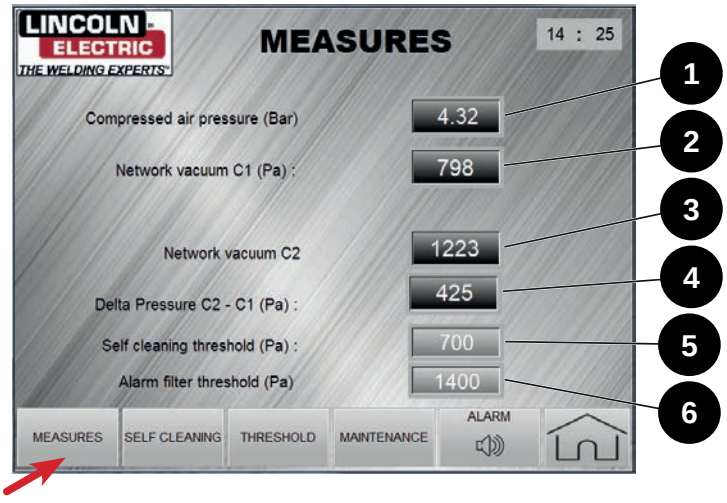
Press the Unclogging screen key of the HMI home screen to display this screen.



1	Access to the Unclogging screen
2	Start of a manual unclogging cycle
3	Back to the home screen

1.3 Real-time measurements screen, with or without flow variation

Real-time display of the different measurement data or regulations of the extraction unit.



1	Compressed air pressure (in Bar)
2	System vacuum, C1 (in Pascal)
3	Fan vacuum, C2 (in Pascal)
4	C2-C1 pressure difference (in Pascal)
5	Unclogging threshold (in Pascal)
6	Filter alarm threshold (in Pascal)

1.4 Unclogging adjustment screen

1	Choice of type of unclogging: • Permanent • Threshold
2	Number of filters
3	Pulse time (in milliseconds)
4	Pause time (in seconds)
5	Number of cycles

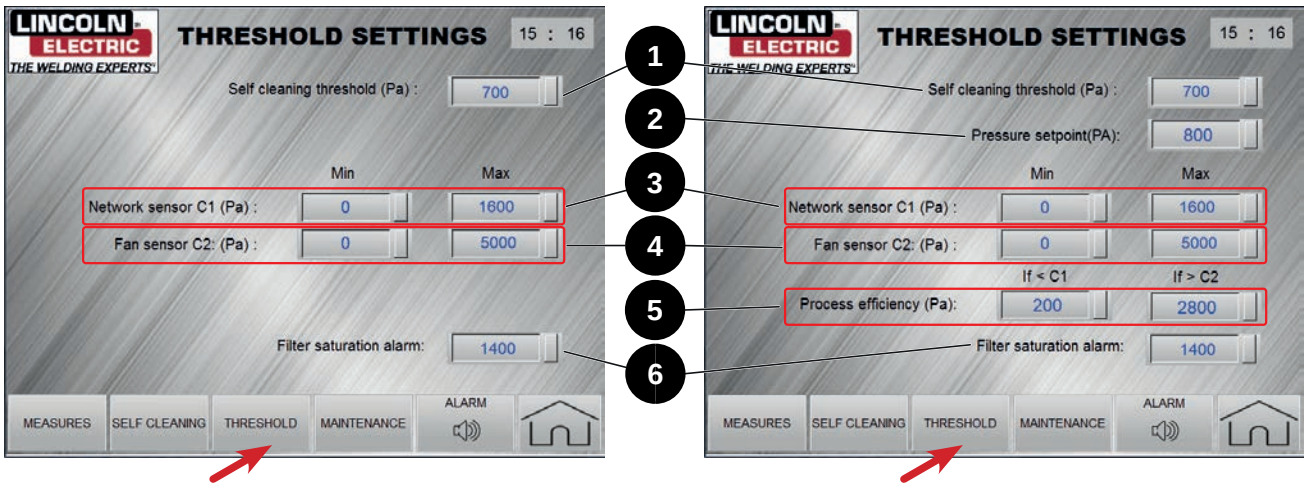
Factory values:

- Pulse time = 300 ms
- Online pause time = 30 s
- Offline pause time = 20 s
- Number of online cycles = 3
- Number of offline cycles = 5

1.5 Threshold adjustment screen

<u>WITHOUT</u> flow variation

<u>WITH</u> flow variation



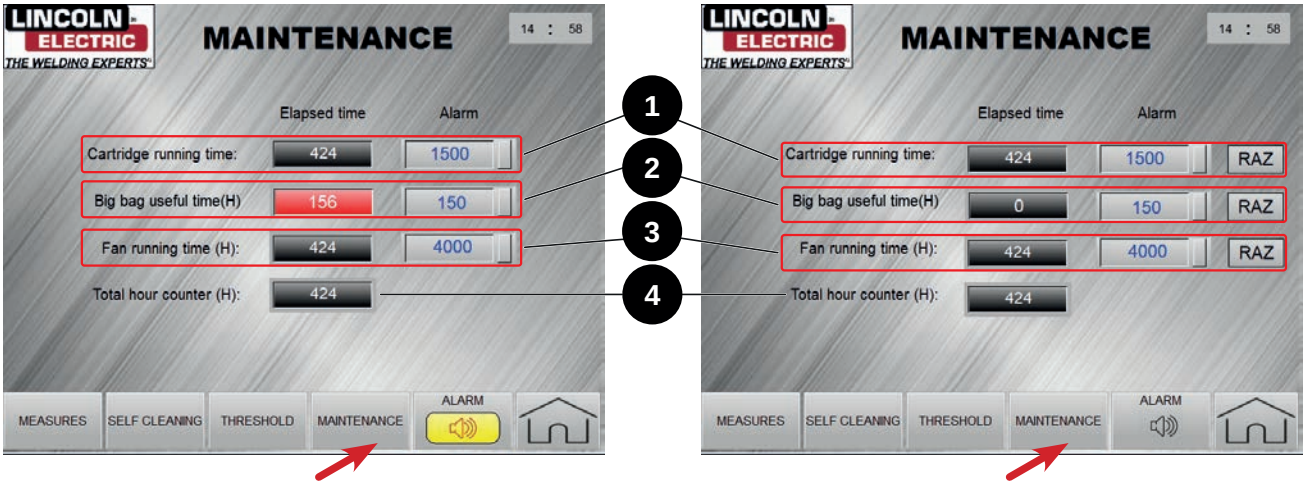
1	Unclogging threshold (in Pascal)
2	System pressure setpoint (in Pascal)
3	C1 system sensor (in Pascal)
4	C2 fan sensor (in Pascal)
5	Process efficiency (in Pascal)
6	Filter saturation alarm (in Pascal)

<u>Factory values:</u>

- Unclogging threshold = 700 Pa
- System pressure setpoint = 800 Pa (To be adapted for the types of sensor used)
- C1 system vacuum sensor = 0/1600 Pa
- C2 system vacuum sensor = 0/5000 Pa
- Process efficiency: 200 Pa/2800 Pa
- Filter saturation alarm = 1400 Pa

NB: The pressure sensors located in the electrical cabinet must be calibrated according to the values displayed on the HMI

1.6 Maintenance adjustment screen



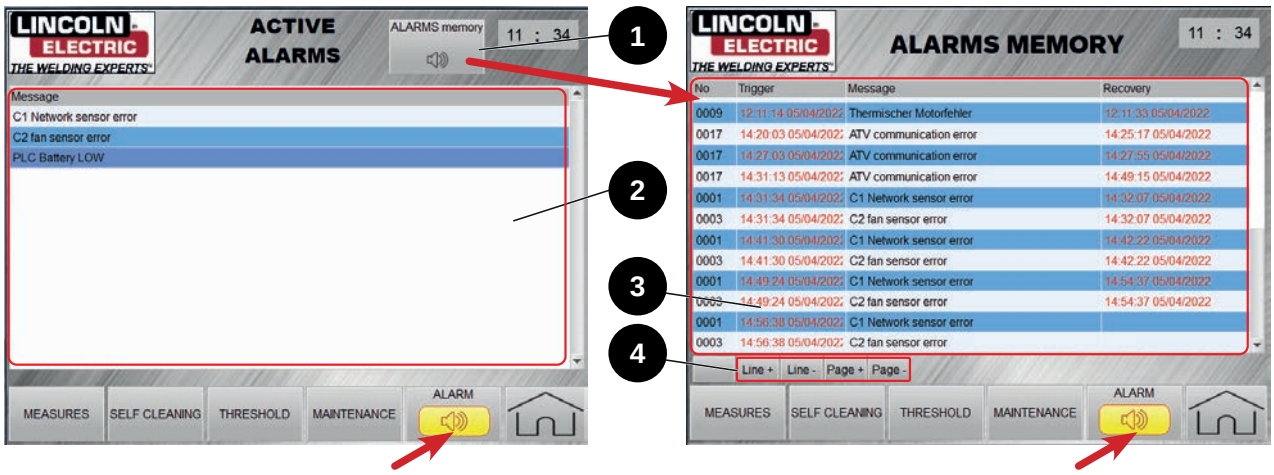
1	Cartridge usage time (in hours)
2	Container usage time (in hours)
3	Fan operating time (in hours)
4	Total unit run time counter (in hours)

Factory values:

- Use of filter cartridges = 1500 hours
- Use of the dust container = 150 hours
- Fan operating time = 4000 hours (check that vibrations are absent every 4000 hours)

Once maintenance is completed, the customer must log in with the following:
Login: LINCOLN and password: MAINT
in order to be able to reset the time counters (RAZ key).

1.7 Alarms screen



1	Access to alarms history
2	List of active alarms
3	Alarms history
4	Page navigation button

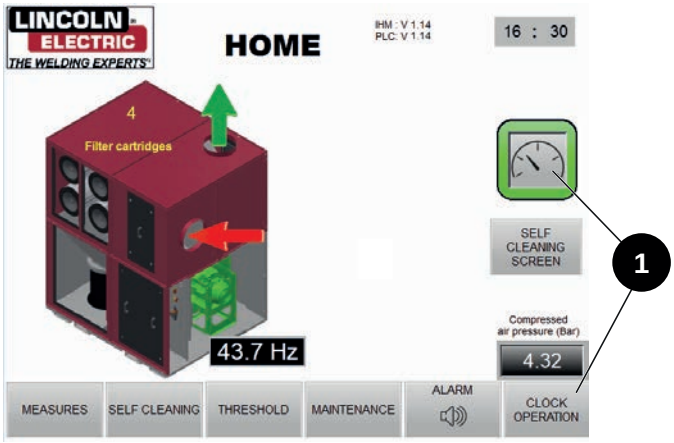
In the Alarms page, you will only find alarms that are active in real time.
Once the alarms have been acknowledged, they are logged on the Alarms history page.

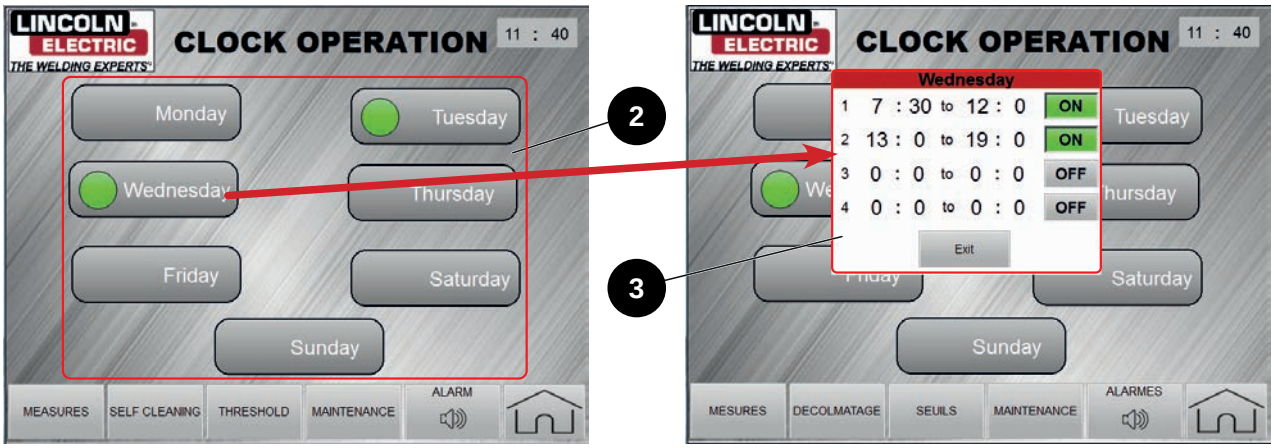
1.8 Clocks screen

The Clock page is accessible from the Home page or by clicking the Clock mode if it is activated

The days are active when the time slots are completed and activated

Four time slots are available every day; activation or not by selecting On/Off

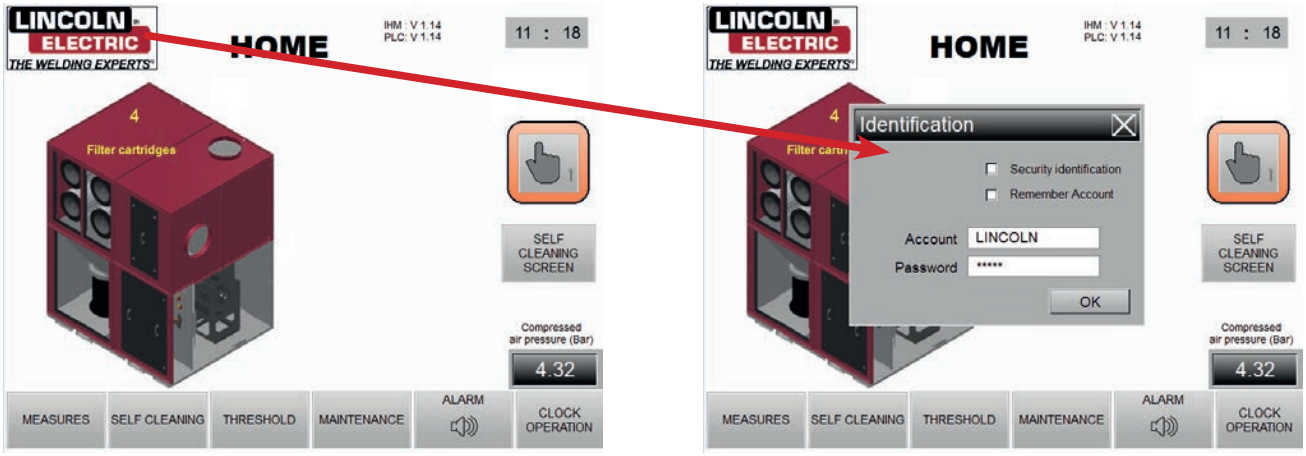




1	Access to the Clock page
2	Day of the week
3	Time slot settings zone

NB:
The time slots saved are only operational if the Clock mode has been selected in the Mode configuration page.

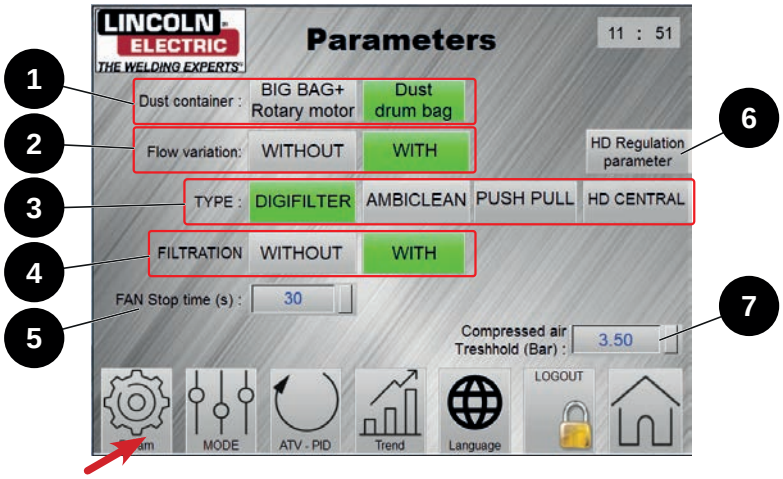
1.9 System screen



Press the LINCOLN ELECTRIC logo.
After entering the codes, press OK.

- Login: LINCOLN
- Password: MAINT

1.10 Settings screen



1	Type of dust recovery
2	Speed variation setting
3	Type of extraction
4	Filtration setting
5	Fan stopping time (in seconds)
6	HD unit adjustment setting
7	Compressed air threshold (in bars)

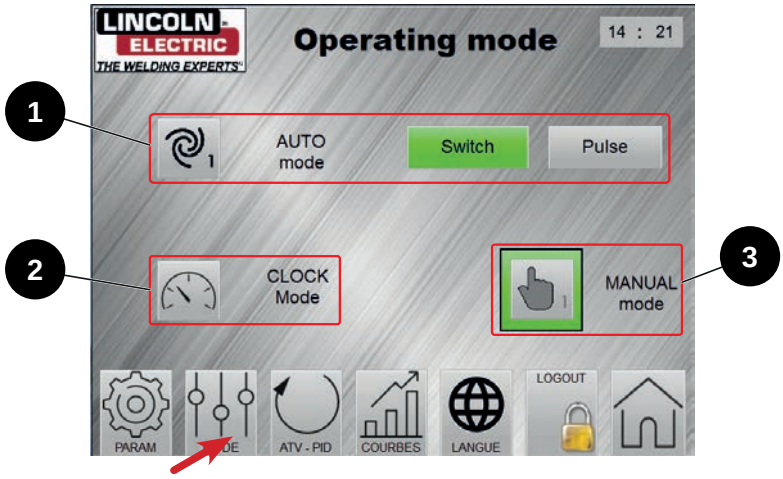
Permitted modifications:

- Fan stopping time
- Compressed air threshold

Factory values:

- Fan stopping time = 30 s
- Compressed air threshold = 3.5 bar

1.11 Operating mode screen

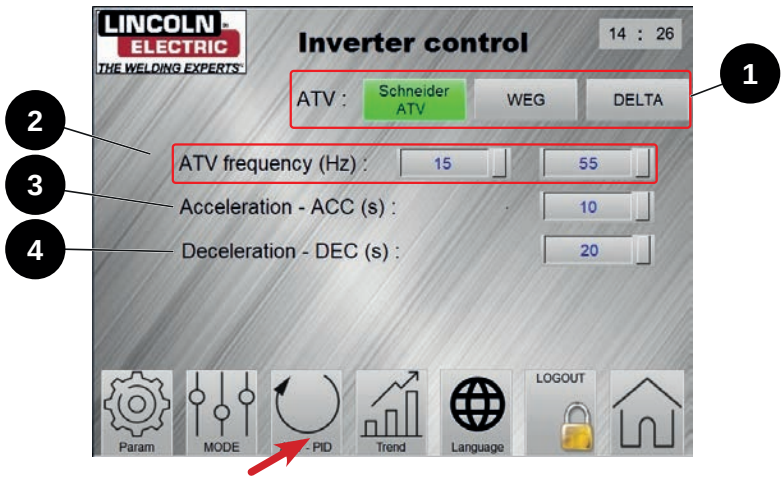


1	Automatic mode by external contact of the hold-to-run type or pulse type
2	Automatic mode by time slot
3	Manual mode

Press the logo to select the desired mode.

NB: The fan must be halted for the modes to become selectable

1.12 Variable drive control screen



1	Type of variable drive
2	Setting of the min and max variable drive frequencies (in Hertz) • Min. frequency = 15 Hz • Max. frequency = 55 Hz
3	Acceleration time setting (in seconds)
4	Deceleration time setting (in seconds)

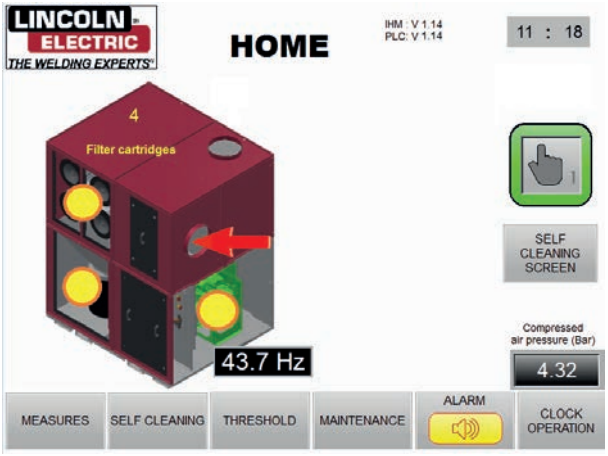
1.13 Languages screen

Choice of language depending on the country.

1.14 Maintenance alarms screen

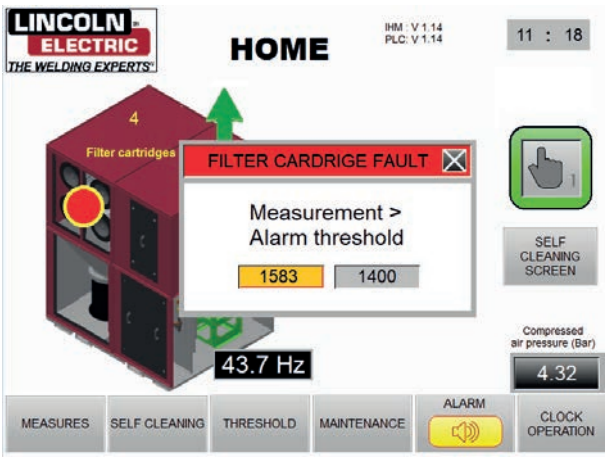
Display by an orange dot of the overrun of maintenance times:

- Filters operation
- Use of container
- Fan operation



1.15 Cartridge saturation alarms screen

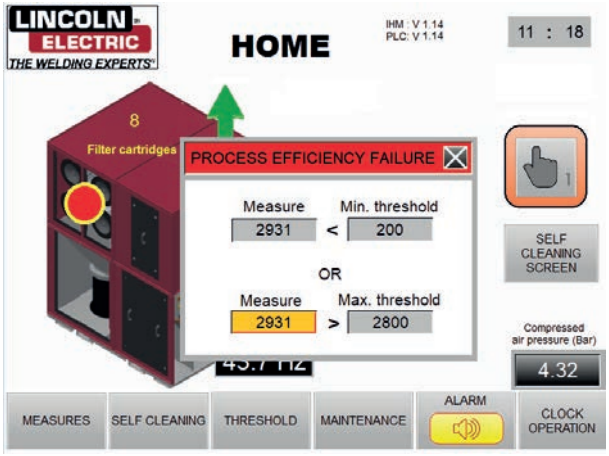
Display of the values of the saturation alarms of filter cartridges.
This screen is displayed when you press the orange key.
The measured value exceeds the saved adjustment threshold (1400Pa).



1.16 Process efficiency alarm screen

Display of the process efficiency alarm.
The measured value exceeds the set min or max threshold

☛ The indicator is red and flashing



1.17 Out of service screen

The **DIGIFILTER** is out of service.

Possible causes:

- Compressed air threshold insufficient
- Emergency stop applied
- Variable drive fault

For more details, access the Alarms page

When the **DIGIFILTER** is out of service, the extraction cannot be restarted.

- Check the emergency stops.
- Check the compressed air pressure.
- Read the error message displayed on the screen of the variable drive, in the electrical cabinet of the unit.

1 - Care

Please read the manually carefully before you start any servicing work. Maintenance operations may only be carried out by specialised and qualified individuals. Behaviour that does not comply with the safety instructions provided could lead to major hazards for personnel and damage to property and/or the surroundings.

Before working on the machine, it is ***MANDATORY*** to lock out all the supplies of utilities to the machine (electricity, air, gas etc.). The air circuit must be vented before any work is done on it Locking an emergency stop button is not sufficient.

CAUTION: All work at heights (maintenance, troubleshooting etc.) must be carried out with appropriate personnel lifting equipment.

For operating instructions, adjustments, troubleshooting and spare parts, please refer to the special instructions for safe operating and maintenance.

Before starting up the machine, make sure that the replaced parts are perfectly installed and that the tools used are removed from the machine.
Make sure that each safety device is in good condition and legible.

MAINTENANCE OF MECHANICAL PARTS

The machine requires negligible mechanical maintenance if it is used correctly in accordance with its technical characteristics.
Before any type of maintenance that is not clearly defined in these instructions, please make inquiries with the technical department of **LINCOLN ELECTRIC**.
The performance of operations that may not be carried out or are contrary to the standards and procedures described in the manual would release **LINCOLN ELECTRIC** from liability for any damage caused and would void the guarantee if it is still valid.

1.1 Pneumatic maintenance

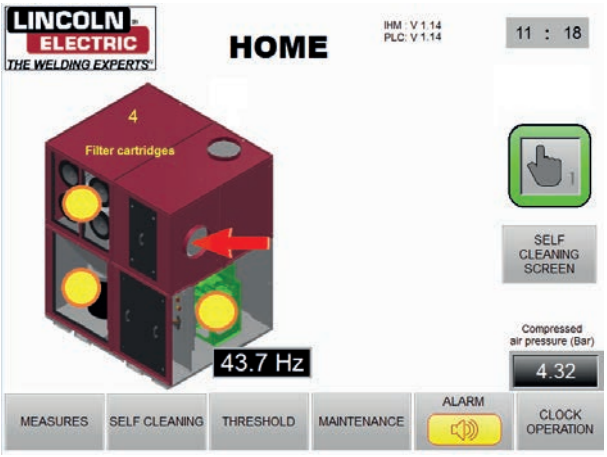
The filter must be purged regularly.
The air supply pipes must be inspected (for leaks) and changed if necessary.
Refer to the maintenance counter or cartridge change counter, which is 1500 hours.

1.2 Electrical maintenance

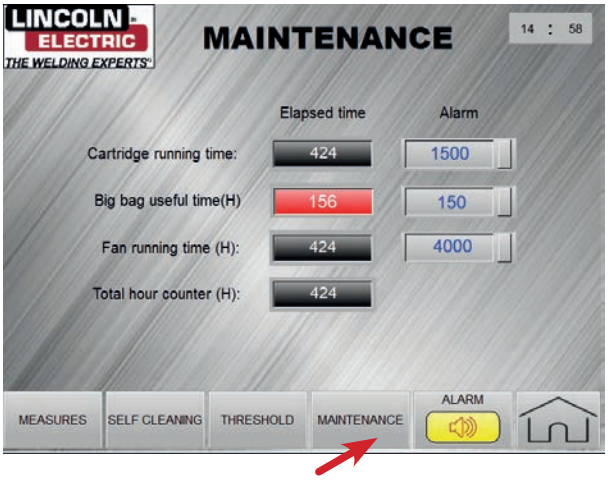
Regularly check the cables and connections. Tighten the screw connections.
Worn cables must be replaced.
Refer to the maintenance counter of the unit, which is 4000 hours.

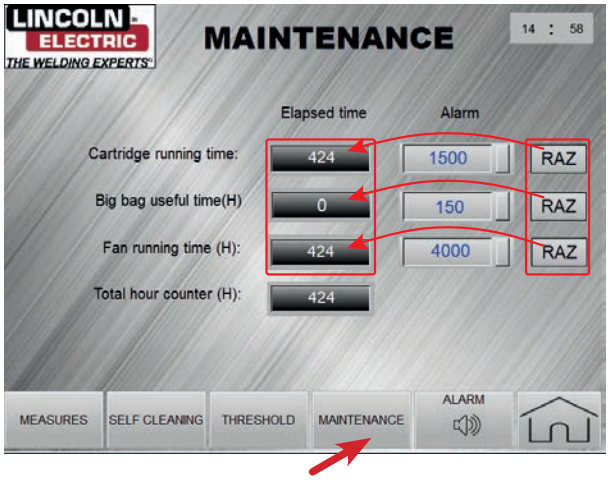
1.3 Maintenance message on the HMI screen

The display of a yellow indicator on filter cartridges or dust containers does not indicate faults. They are maintenance alarms.
They may relate to the replacement of filter cartridges, the emptying of dust containers or bulk bags, rotary discharger maintenance, motor maintenance, or general unit maintenance.



These maintenance alarms indicate that the run time counter of the relevant part has reached the limit and maintenance is required; the counter must then be reset up to the next cycle.





To reset the counter, you must click on the counter and then log in:

- Login: LINCOLN
- Password: MAINT

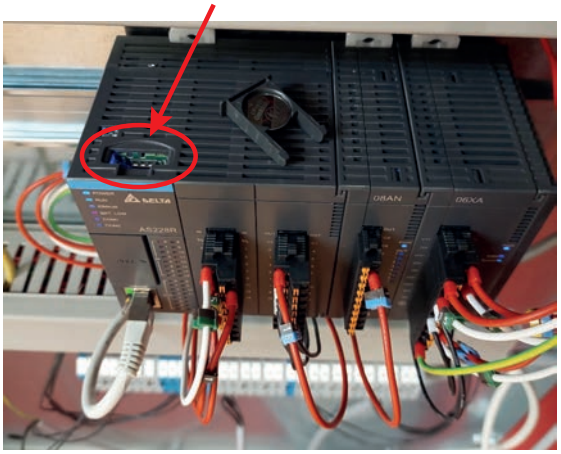
1.4 Batteries on the PLC and HMI screen

The Delta HMI and PLC are fitted with batteries to save the configurations and settings.

The life of those batteries is estimated to be between 2 and 3 years, if the unit is regularly powered on and up to 5 years if the unit remains powered.

That is why we recommend leaving the unit on standby and powered at the end of the day.

on the Delta PLC: CR1620 - 3V battery



on the Delta HMI screen: CR2032 - 3V battery

In order to not lose the settings, the battery change must be made with the power on, by a worker with electrical approval.

1.5 HMI screen and PLC software update

For different reasons relating to maintenance, product upgrade or failure, the programs of the PLC and HMI screen can be updated.

Please contact the staff of LINCOLN ELECTRIC for these tasks.

1.6 Fan

The rotating parts of fans (wheel, shaft, pulley) are very hazardous.

Check fan vibrations upon starting up. They must comply with ISO 14694 according to the tables below.
If they are not conforming, please contact us.
This regular inspection is required for the integrity of the fan.

Table 1 - Fan application category

Application	Power limits kW	Categories of application of fan
Households	≤ 0.15	BV-1
	> 0.15	BV-2
HVAC and farming	≤ 0.37	BV-2
	> 0.37	BV-3
Industrial processes and energy generation	≤ 300	BV-3
	> 300	See ISO 10816-3
Transport and maritime	≤ 15	BV-3
	> 15	BV-4
Traffic/tunnel	≤ 75	BV-3
	> 75	BV-4
Petrochemicals processes	≤ 37	BV-3
	> 37	BV-4
Computer chip manufacturing	None	BV-5

Table 2 - Vibration limits

Status	Category of application	Rigid assembly mm/s (rms).	Flexible assembly mm/s (rms).
Starting	BV-1	10	11.2
	BV-2	5.6	9
	BV-3	4.5	6.3
	BV-4	2.8	4.5
	BV-5	1.8	2.8
Alarm	BV-1	10.6	14
	BV-2	9	14
	BV-3	7.1	11.8
	BV-4	4.5	7.1
	BV-5	4	5.6
Stopping	BV-1	Depending on history	Depending on history
	BV-2	Depending on history	Depending on history
	BV-3	9	12.5
	BV-4	7.1	11.2
	BV-5	5.6	7.1

NB: **LINCOLN ELECTRIC** markets fans of categories BV3 and BV4.

All maintenance operations are to be carried out with the power to the system switched off.
The user may not modify the construction of the fan in any way.

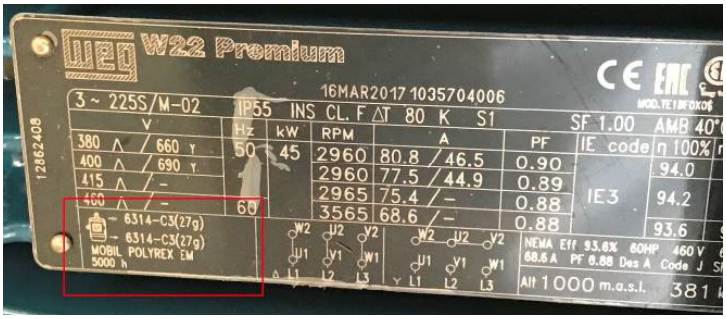
Check that dust is not being deposited in large quantities on the following:
- The motor ventilation blades.
- The fixed and rotating parts of the fan.

Clean if necessary.

The fan wheel must be clean and regularly cleaned in order to avoid a drop in efficiency or wheel unbalance.

Lubrication:
If the fan does not have a lubricator, no lubrication is required.

If the fan does have a lubricator, follow the instructions provided on the motor identification plate.



Motors with lubricators must be halted before lubrication. Proceed as follows:
- Before lubrication, clean the lubricator plug and the immediate vicinity carefully.
- Remove the lubricant entry protection.
- Pump approximately half the total lubricant indicated on the identification plate of the motor and make the motor run for one minute at nominal speed.
- Stop the motor and pump the remaining lubricant.
- Plug the lubricant inlet and put back the plug that shuts off lubricant removal.

Excess lubrication can lead to bearing overheating, which can make the bearing fail.
Type of lubricant to use: Mobil Polyrex EM

Rear lubricator

Front lubricator

Bearing maintenance:

Bearing inspection

As soon as the motor shows the following:

- noise or abnormal vibrations,
- abnormal heating of the bearing when it is lubricated correctly; the condition of the bearings must be inspected.

Damaged bearings must be replaced as soon as possible to prevent more significant damage to the motor and driven parts.
When a bearing needs to be replaced, **the other bearing must also be replaced.**
Seals must always be changed when bearings are changed.
The floating bearing must allow the expansion of the rotor shaft (make sure to identify it during disassembly).

Bearing housing overhaul

Housings with bearings with no lubricator
Disassemble the motor; remove the old lubricant and clean the bearings and accessories with grease remover.
Put fresh lubricant: the filling rate of the housing with fresh lubricant is 50% of the free space.

Housings with bearings with lubricator
Always start off by cleaning the waste grease channel
If using the type of grease identified on the nameplate, remove the covers and clean the lubricator heads.
If a different grease from that on the nameplate is being used, the motor must be dismantled and the bearings and accessories cleaned with degreasing agent (carefully clean the grease inlet and outlet pipes) to remove the old grease before relubrication.
For proper lubrication, fill the inner free spaces of bearing retainers, flanges and grease pipes and 30% of the bearing free space.
Then rotate the motor shaft to spread the grease.

Caution:
Too much grease causes the bearing to overheat (statistics show that more bearings are damaged through too much grease than too little grease).

Important note:
Fresh grease must be recently manufactured, of equivalent performance and free from any impurity (dust, water, etc.).

1.7 Maintenance of filtering elements

Pre-filters:

The pre-filter must be cleaned with the extraction system disconnected and locked out.

We recommend weekly cleaning at the start. Depending on use and fouling, a monthly cleaning frequency may subsequently be envisaged.

- Clean with compressed air in a very well ventilated room or by immersion in a solution of water + FILTERCLEAN 20L part no. W000342878 and dry with air (dilution depending on fouling, see label on drum).

Access to the pre-filters is through the panel on the front.

Maintenance/replacement of filter cartridges:

To replace the filter cartridges, always use gloves, safety glasses, a respiratory mask and appropriate clothing in order to prevent any risk of contact with or inhalation of the particles collected. The power supply must always be switched off using the disconnector or via the fuses. If the filter has a power connector, it must be separated from its socket on the wall.

After every three months, we recommend inspecting the surfaces of the cartridges:

- If the dust build-up is excessive, the working of the solenoid valves and the application of offline unclogging cycles must be inspected.
- If there are oily deposits, the filter cartridges must be changed.

Every year, or after 1500 hours of use as indicated by the corresponding maintenance counter:

- Change the filter cartridges.

1: Open the filter compartment
2: Unscrew the flat nut that holds the cartridge fastened
3: Place a plastic bag around the cartridge and remove it
4: Put the clogged cartridge in the packaging of the new cartridge
5: Put in the new cartridge, screw back the flat nut and close the doors
6: Apply the starting up procedure

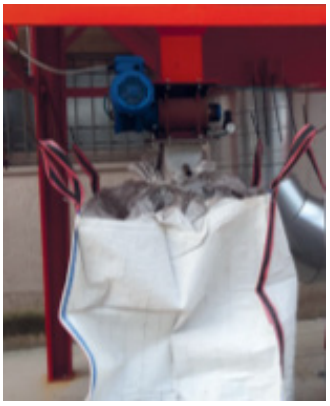
Users are strongly advised to replace the cartridge as soon as the system ceases to operate satisfactorily. (When extraction no longer seems adequate). Or when the cartridge saturation alarm is active.

Used filters must be treated using an appropriate process in accordance with local regulations.

Procedure for emptying the dust container:

While emptying the container/s or changing the bulk bags, use gloves, protective glasses, a respiratory mask and appropriate clothing in order to avoid any risk of contact with or inhalation of the particles collected. The power supply must always be switched off using the disconnector or via the fuses.

By default, there is no bag. If there is one, it must be weighted down so that it is not sucked up by the vacuum when it is empty.



The containers must be emptied regularly.
Bulk bags must be changed whenever they are three-quarters full.

1- Switch off the power to the fan.

2- Open the dust container compartment.
Take off the holding latches (to do so, press the unlocking mechanisms of the latches on the HD units)
Remove the container using equipment appropriate for the weight of the whole.
If there is a bag, replace the bag inside and put the container in its place.

3 - Take the bulk bag off the hopper.
Make a knot to close the bulk bag before handling.
Remove the bulk bag using equipment appropriate for the weight of the whole.
Put the new bulk bag in place under the hopper and attach it to the hopper so that it is sealed

4 - Put the unit back into service.

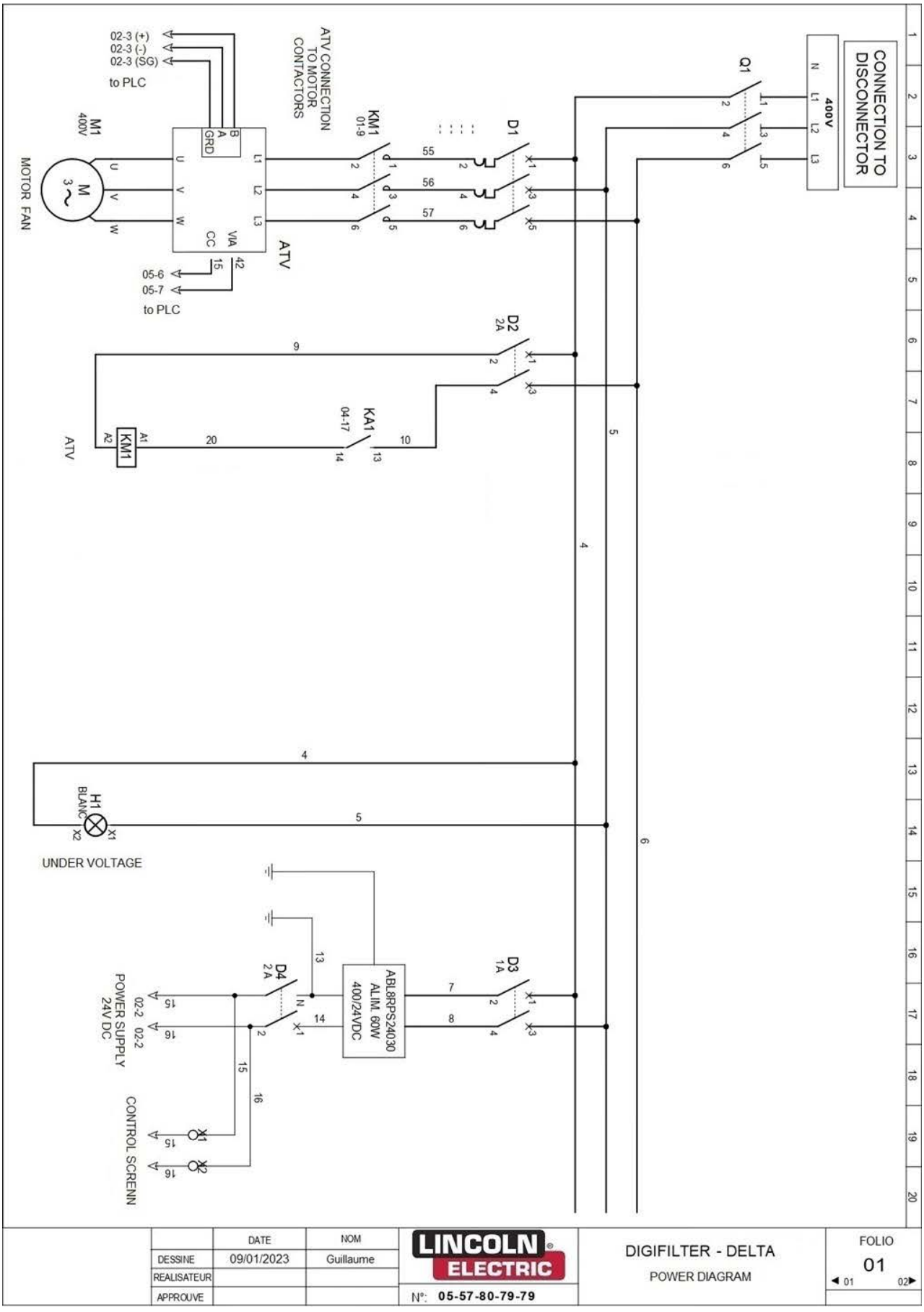
Bags, bulk bags or other dust containers must be treated using an appropriate process in accordance with local regulations

Inspection of unclogging components:

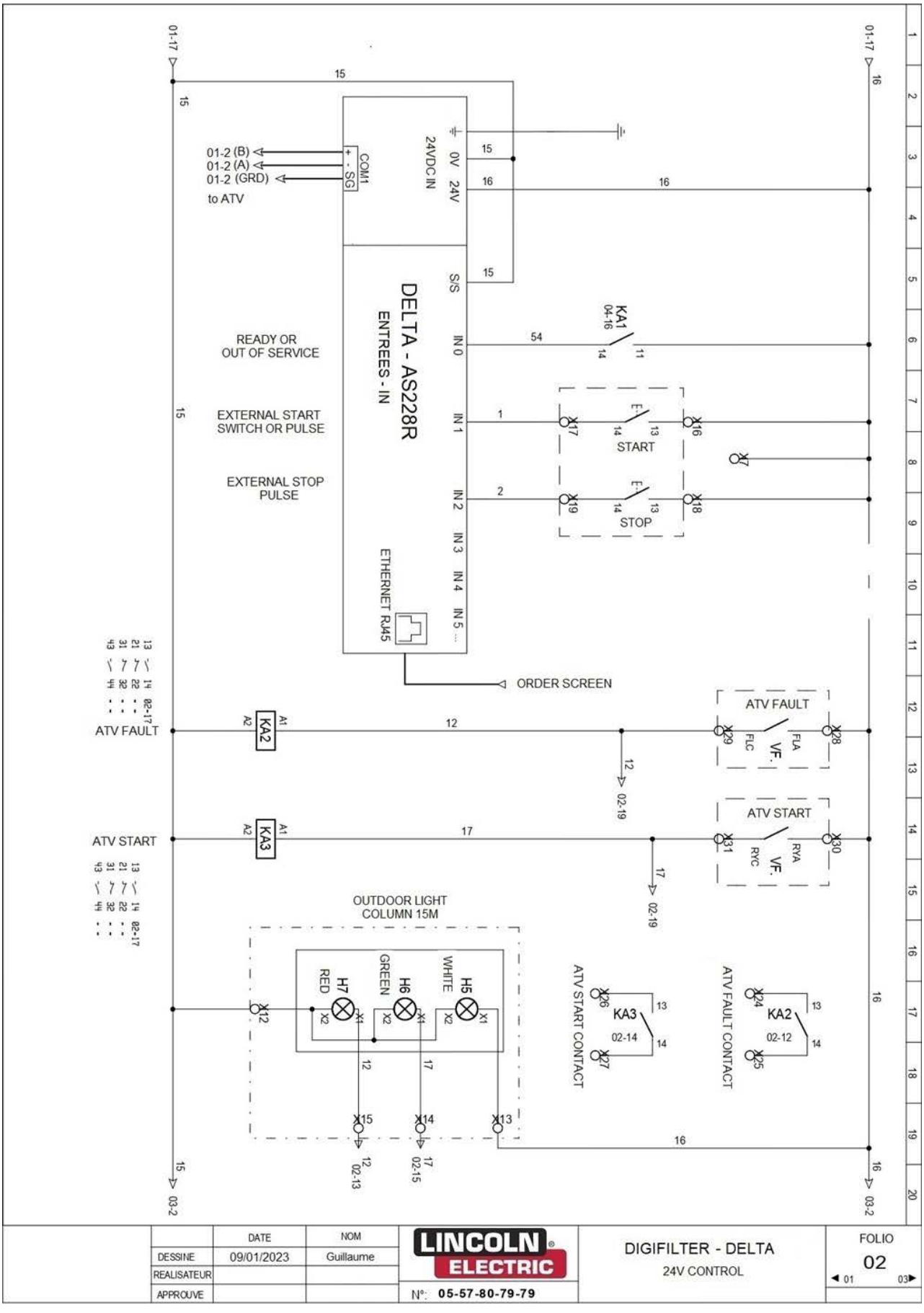
It is important to inspect the proper working and position of the unclogging solenoid valves while replacing filter cartridges.

They must be placed along the centre line of the cartridges near the unclogging mechanism and not have any air leaks.

2.1 With no variable drive or rotary discharger



	DATE	NOM			
DESSINE	09/01/2023	Guillaume	LINCOLN ELECTRIC	DIGIFILTER - DELTA	FOLIO 01
REALISATEUR				POWER DIAGRAM	◄ 01 02►
APPROUVE			N°: 05-57-80-79-79		



	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

LINCOLN ELECTRIC

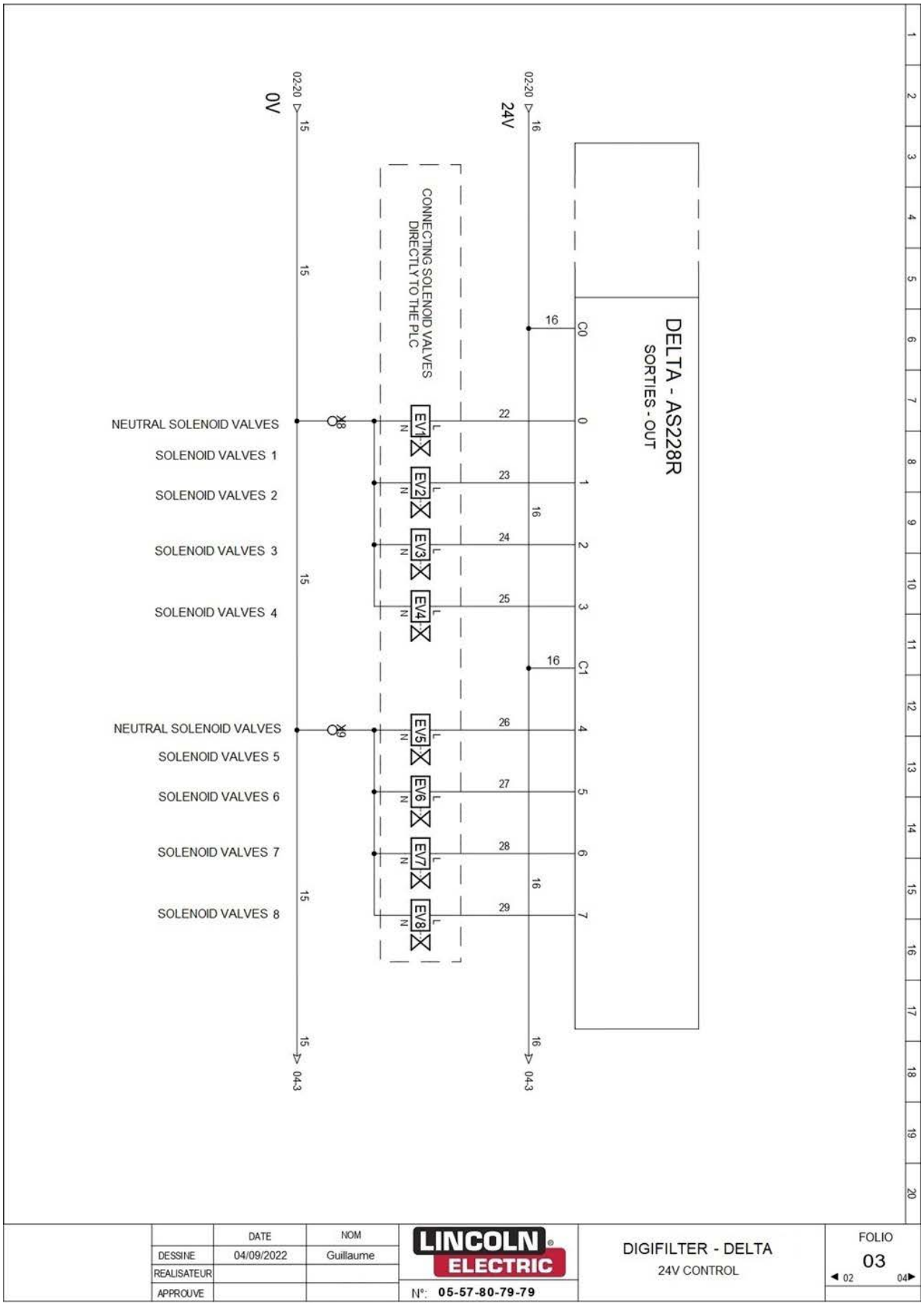
N°: 05-57-80-79-79

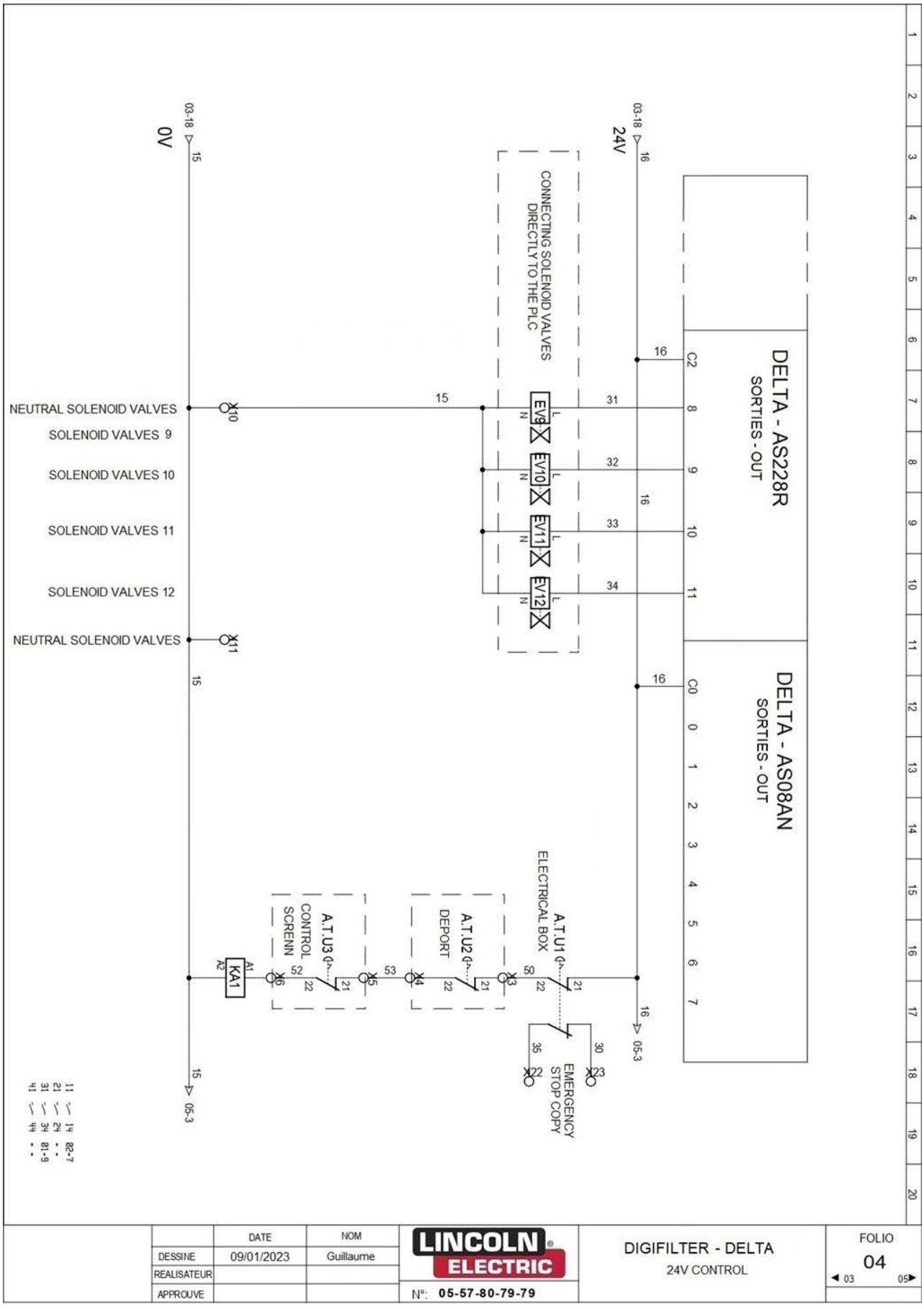
DIGIFILTER - DELTA

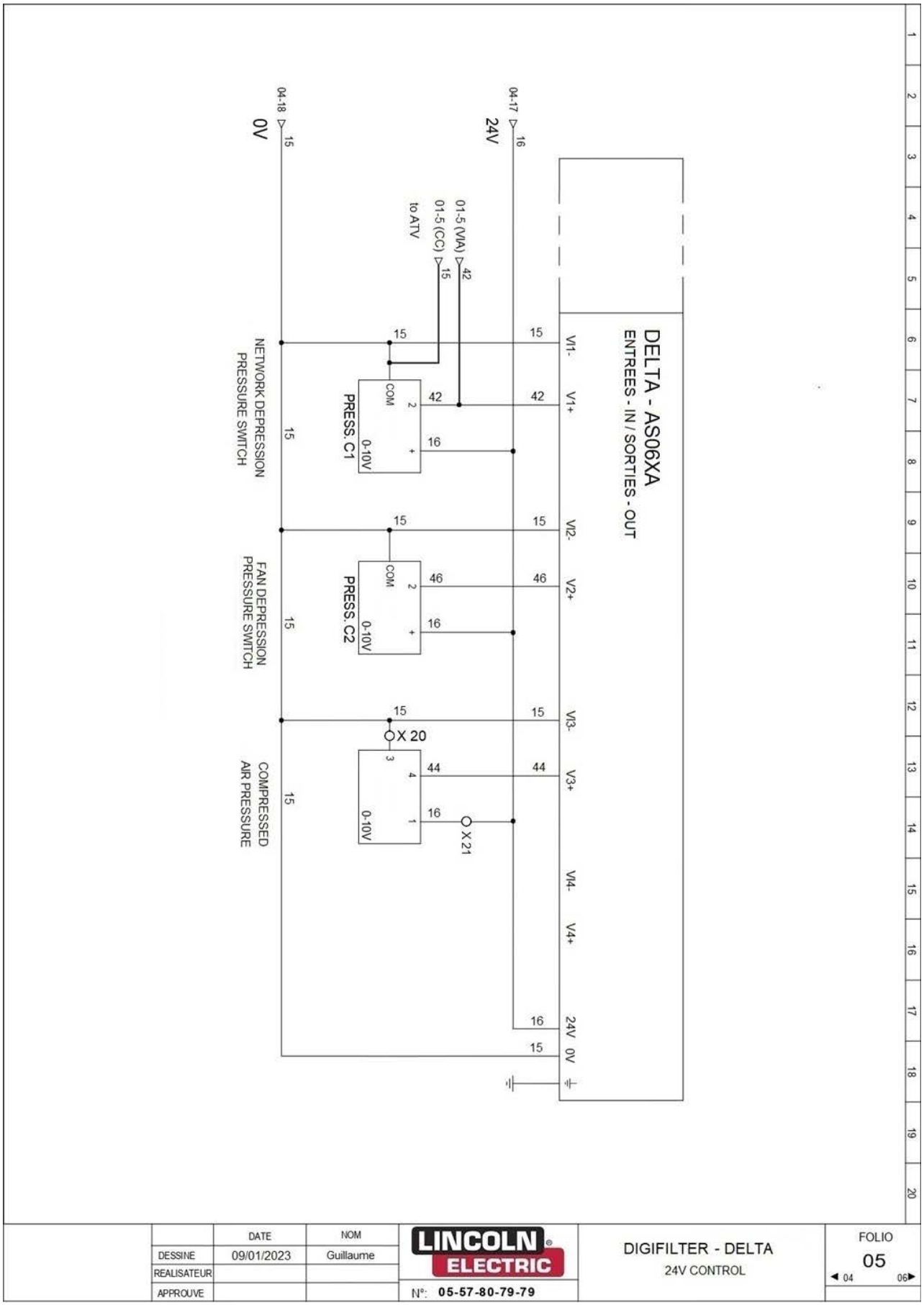
24V CONTROL

FOLIO 02

◄ 01 03►


0V
24V
02:20
15
16
04:3
DELTA - AS228R
SORTIES - OUT
C0
C1
CONNECTING SOLENOID VALVES DIRECTLY TO THE PLC
NEUTRAL SOLENOID VALVES
SOLENOID VALVES 1
SOLENOID VALVES 2
SOLENOID VALVES 3
SOLENOID VALVES 4
NEUTRAL SOLENOID VALVES
SOLENOID VALVES 5
SOLENOID VALVES 6
SOLENOID VALVES 7
SOLENOID VALVES 8
EV1
EV2
EV3
EV4
EV5
EV6
EV7
EV8
L
N
22
23
24
25
26
27
28
29
0
1
2
3
4
5
6
7
X8
X9
DIGIFILTER - DELTA
24V CONTROL
DESSINE
REALISATEUR
APPROUVE
DATE
04/09/2022
NOM
Guillaume
LINCOLN ELECTRIC
N°: 05-57-80-79-79
FOLIO
03
02
04


DELTA - AS228R
SORTIES - OUT
DELTA - AS08AN
SORTIES - OUT
CONNECTING SOLENOID VALVES DIRECTLY TO THE PLC
24V
0V
NEUTRAL SOLENOID VALVES
SOLENOID VALVES 9
SOLENOID VALVES 10
SOLENOID VALVES 11
SOLENOID VALVES 12
NEUTRAL SOLENOID VALVES
EV9
EV10
EV11
EV12
KA1
A.T.U1
ELECTRICAL BOX
A.T.U2
DEPORT
A.T.U3
CONTROL SCRENN
EMERGENCY STOP COPY
DATE
NOM
DESSINE
09/01/2023
Guillaume
REALISATEUR
APPROUVE
LINCOLN ELECTRIC
N°: 05-57-80-79-79
DIGIFILTER - DELTA
24V CONTROL
FOLIO
04
03
05



	DATE	NOM
DESSINE	09/01/2023	Guillaume
REALISATEUR		
APPROUVE		

LINCOLN ELECTRIC

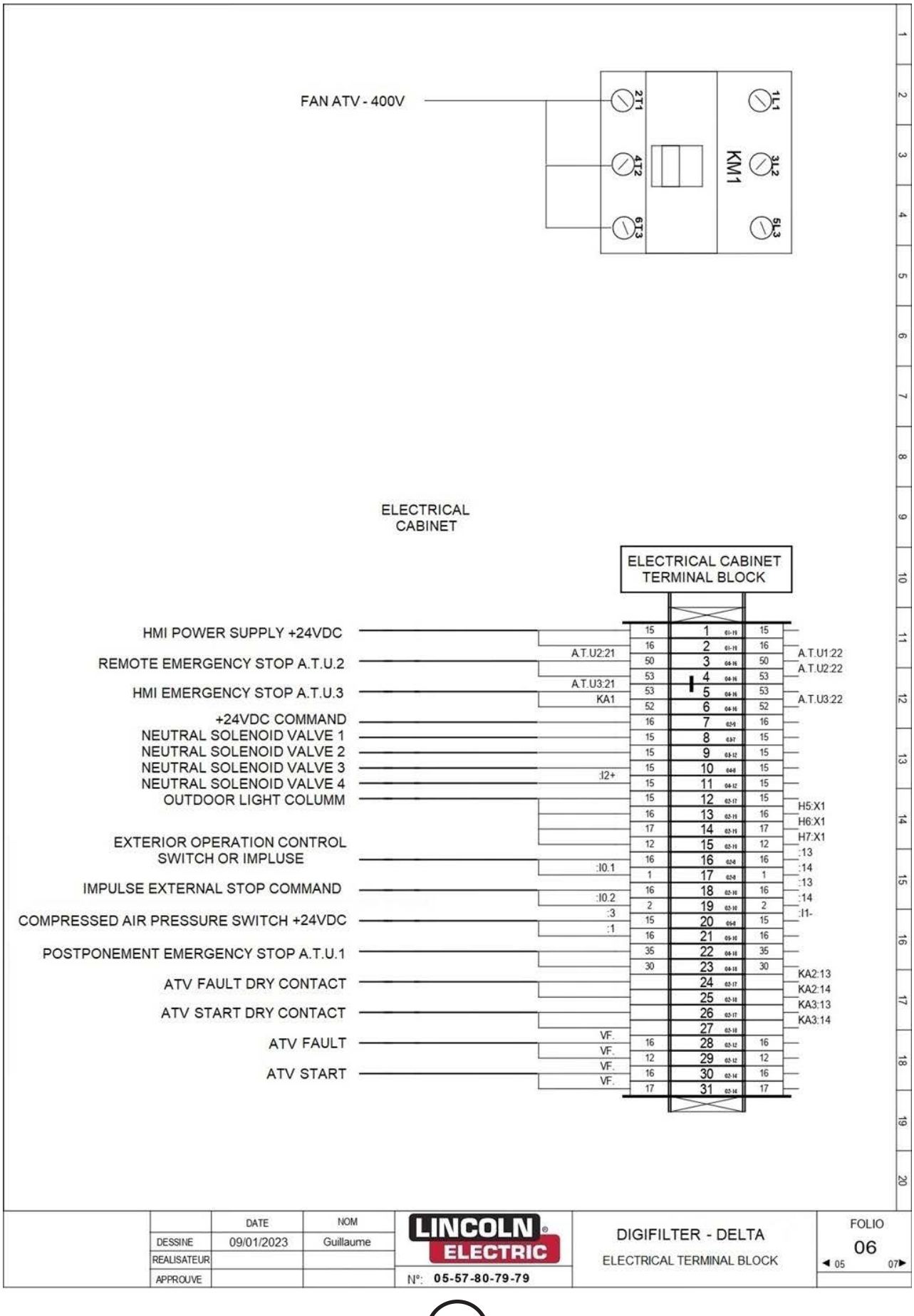
N°: 05-57-80-79-79

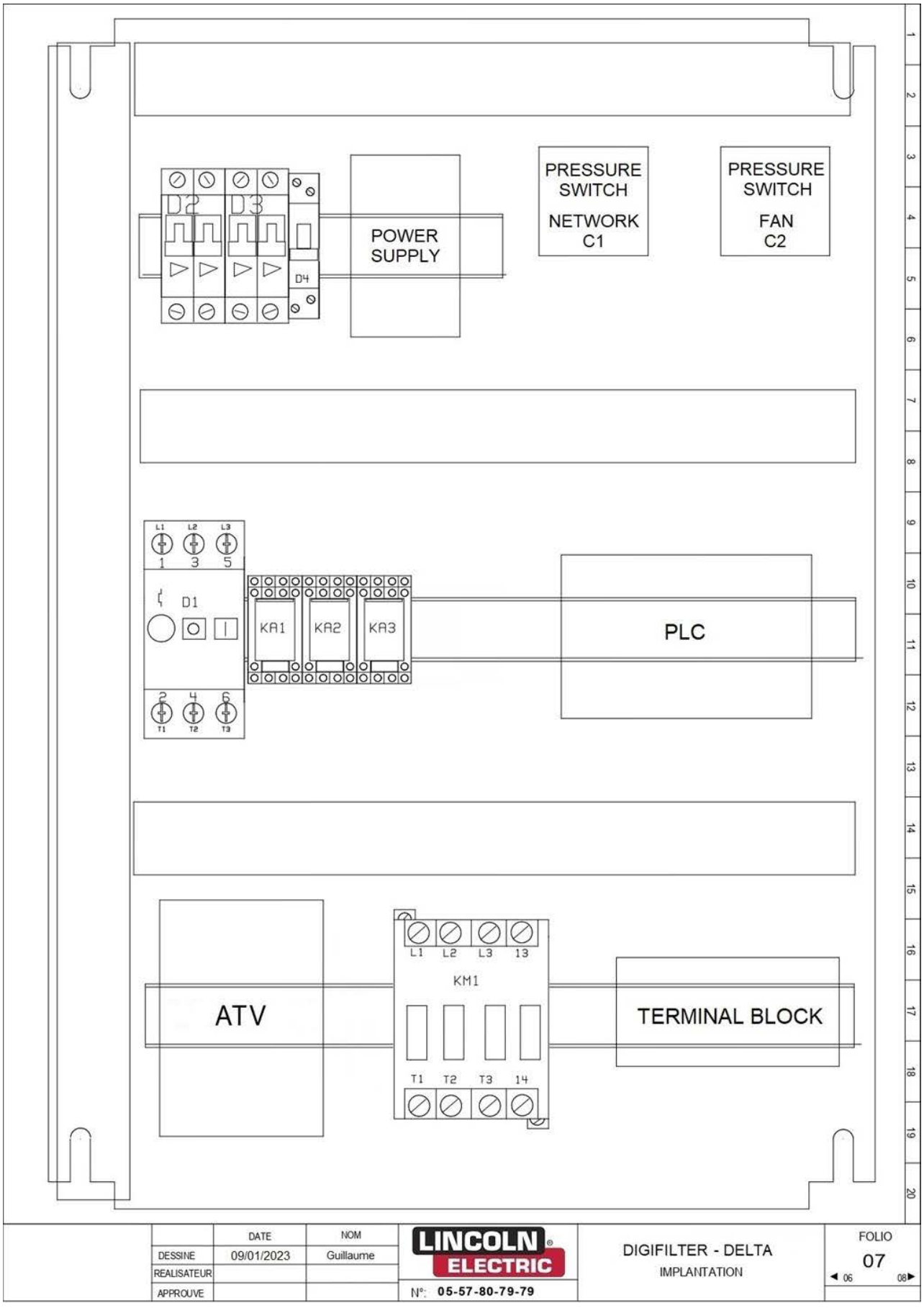
DIGIFILTER - DELTA

24V CONTROL

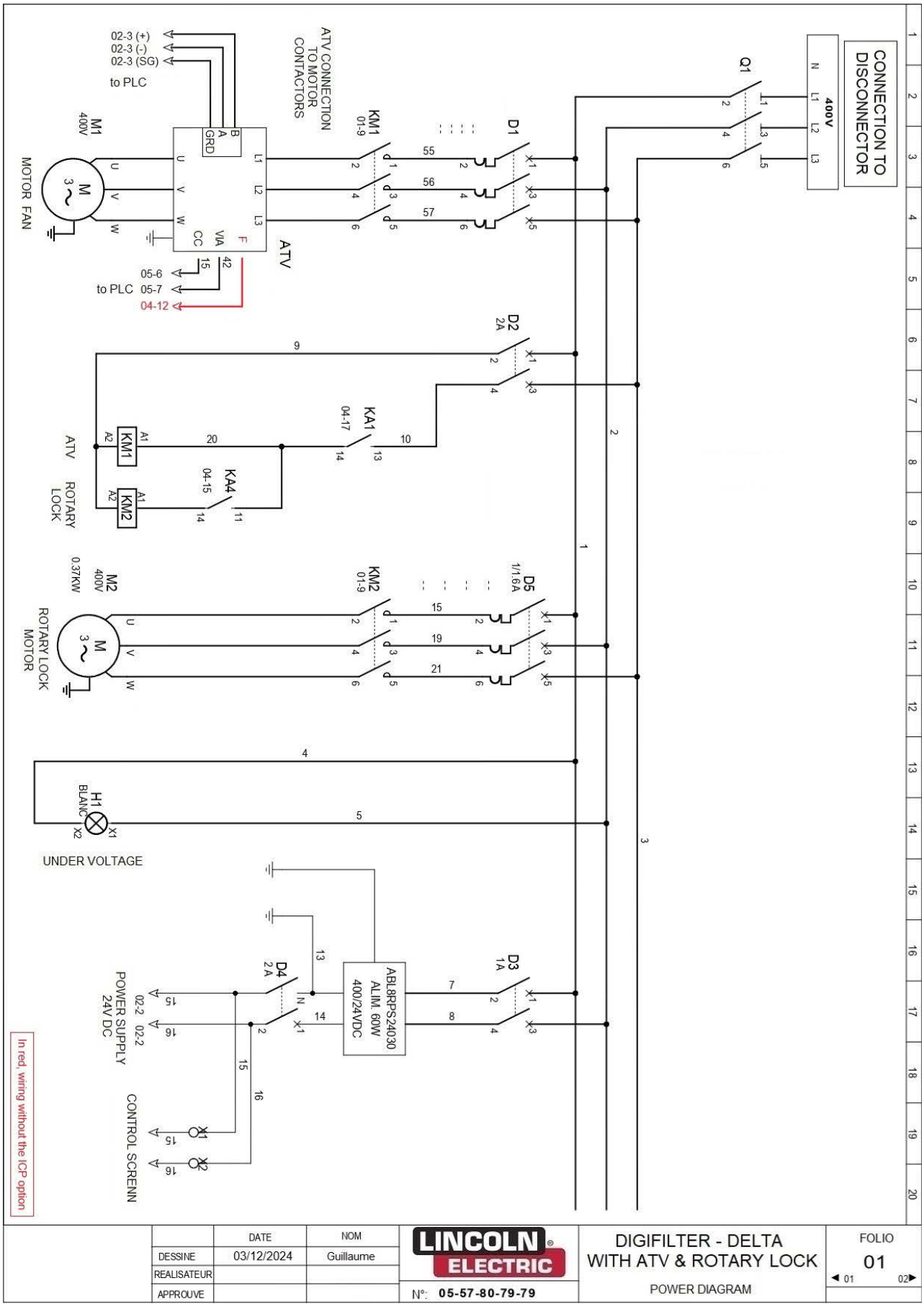
FOLIO 05

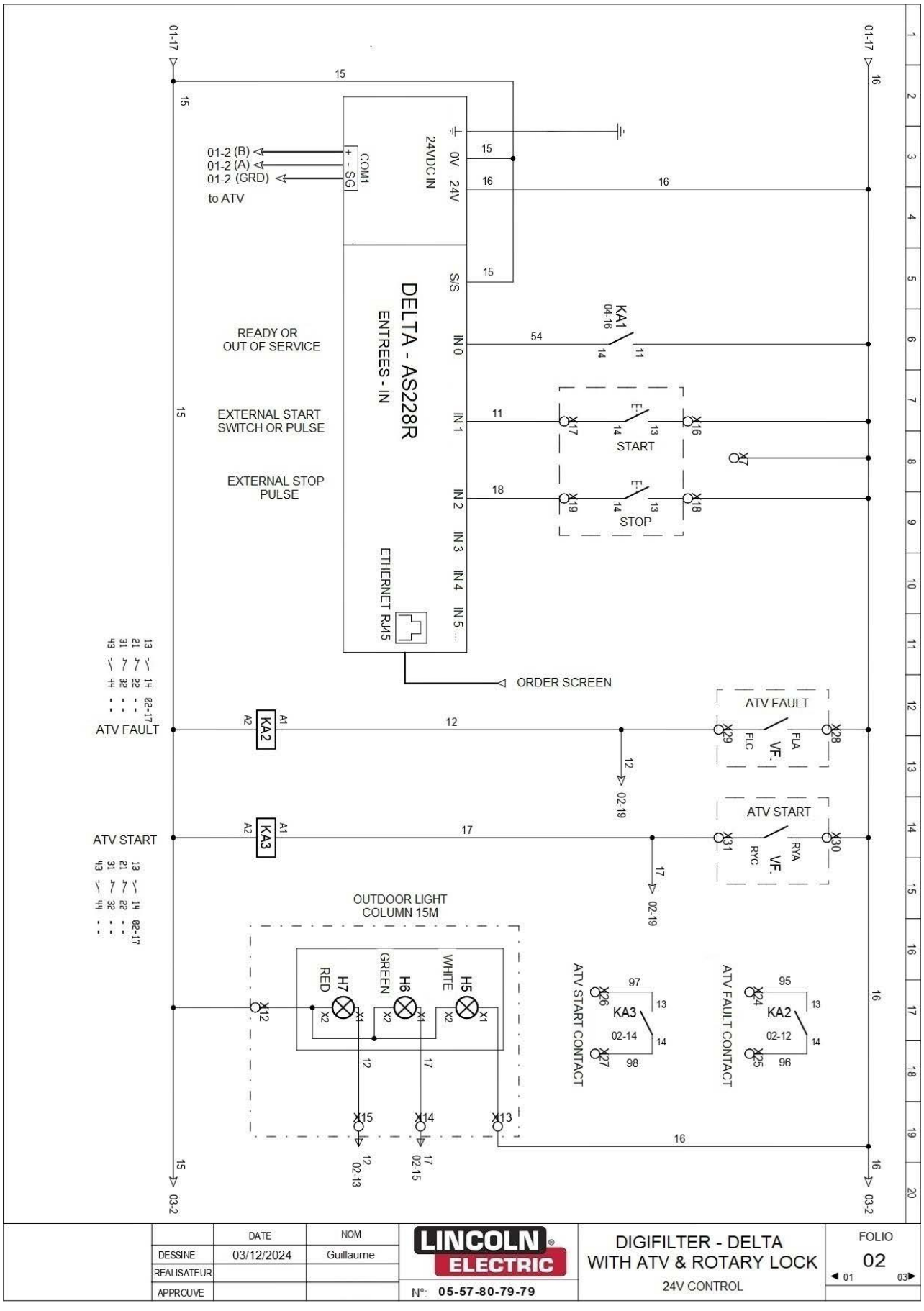
◄ 04 06►


FAN ATV - 400V
2T1
4T2
6T3
1L1
3L2
5L3
KM1
ELECTRICAL CABINET
ELECTRICAL CABINET TERMINAL BLOCK
HMI POWER SUPPLY +24VDC
REMOTE EMERGENCY STOP A.T.U.2
HMI EMERGENCY STOP A.T.U.3
+24VDC COMMAND
NEUTRAL SOLENOID VALVE 1
NEUTRAL SOLENOID VALVE 2
NEUTRAL SOLENOID VALVE 3
NEUTRAL SOLENOID VALVE 4
OUTDOOR LIGHT COLUMM
EXTERIOR OPERATION CONTROL SWITCH OR IMPLUSE
IMPULSE EXTERNAL STOP COMMAND
COMPRESSED AIR PRESSURE SWITCH +24VDC
POSTPONEMENT EMERGENCY STOP A.T.U.1
ATV FAULT DRY CONTACT
ATV START DRY CONTACT
ATV FAULT
ATV START
A.T.U2:21
A.T.U3:21
KA1
:I2+
:I0.1
:I0.2
:3
:1
VF.
A.T.U1:22
A.T.U2:22
A.T.U3:22
H5:X1
H6:X1
H7:X1
:13
:14
:13
:14
:I1-
KA2:13
KA2:14
KA3:13
KA3:14
DESSINE
REALISATEUR
APPROUVE
DATE
09/01/2023
NOM
Guillaume
LINCOLN ELECTRIC
N°: 05-57-80-79-79
DIGIFILTER - DELTA
ELECTRICAL TERMINAL BLOCK
FOLIO
06
◄ 05
07►

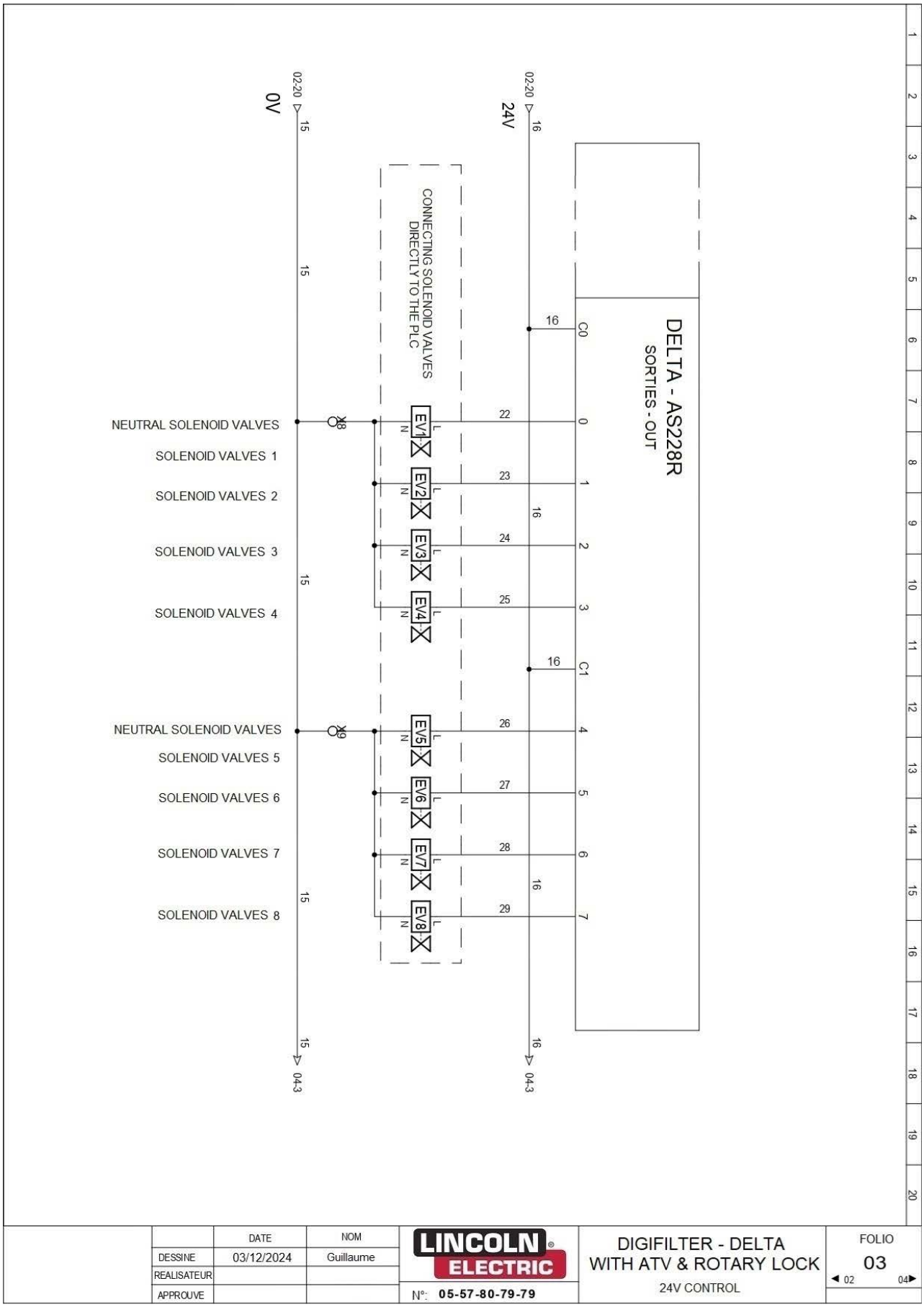

D2
D3
D4
POWER SUPPLY
PRESSURE SWITCH NETWORK C1
PRESSURE SWITCH FAN C2
L1 L2 L3
1 3 5
D1
KA1
KA2
KA3
PLC
2 4 6
T1 T2 T3
ATV
L1 L2 L3 13
KM1
T1 T2 T3 14
TERMINAL BLOCK
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DATE
NOM
DESSINE
09/01/2023
Guillaume
REALISATEUR
APPROUVE
LINCOLN ELECTRIC
N°: 05-57-80-79-79
DIGIFILTER - DELTA
IMPLANTATION
FOLIO
07
◄ 06
08 ►

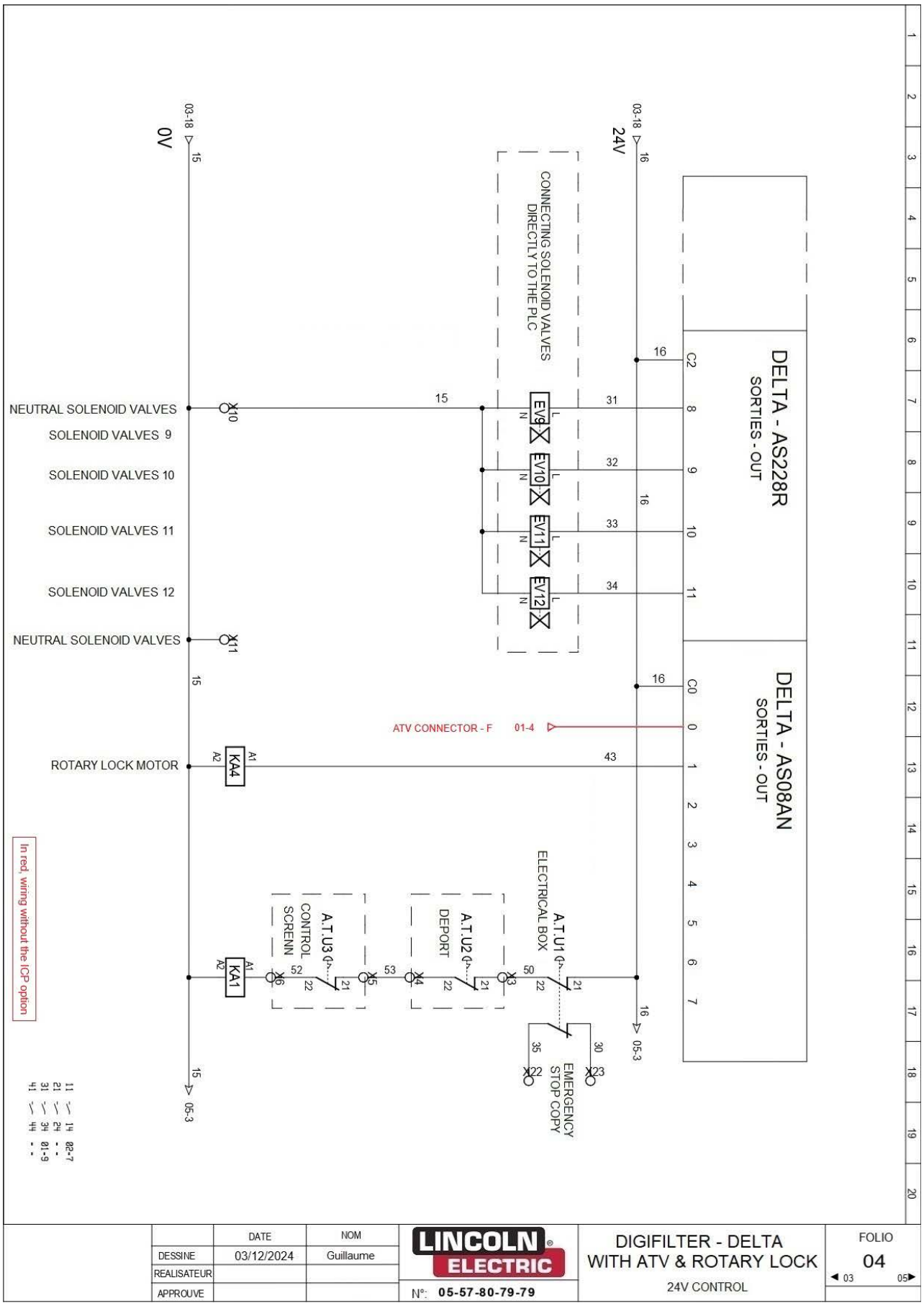
2.2 With variable drive and rotary discharger

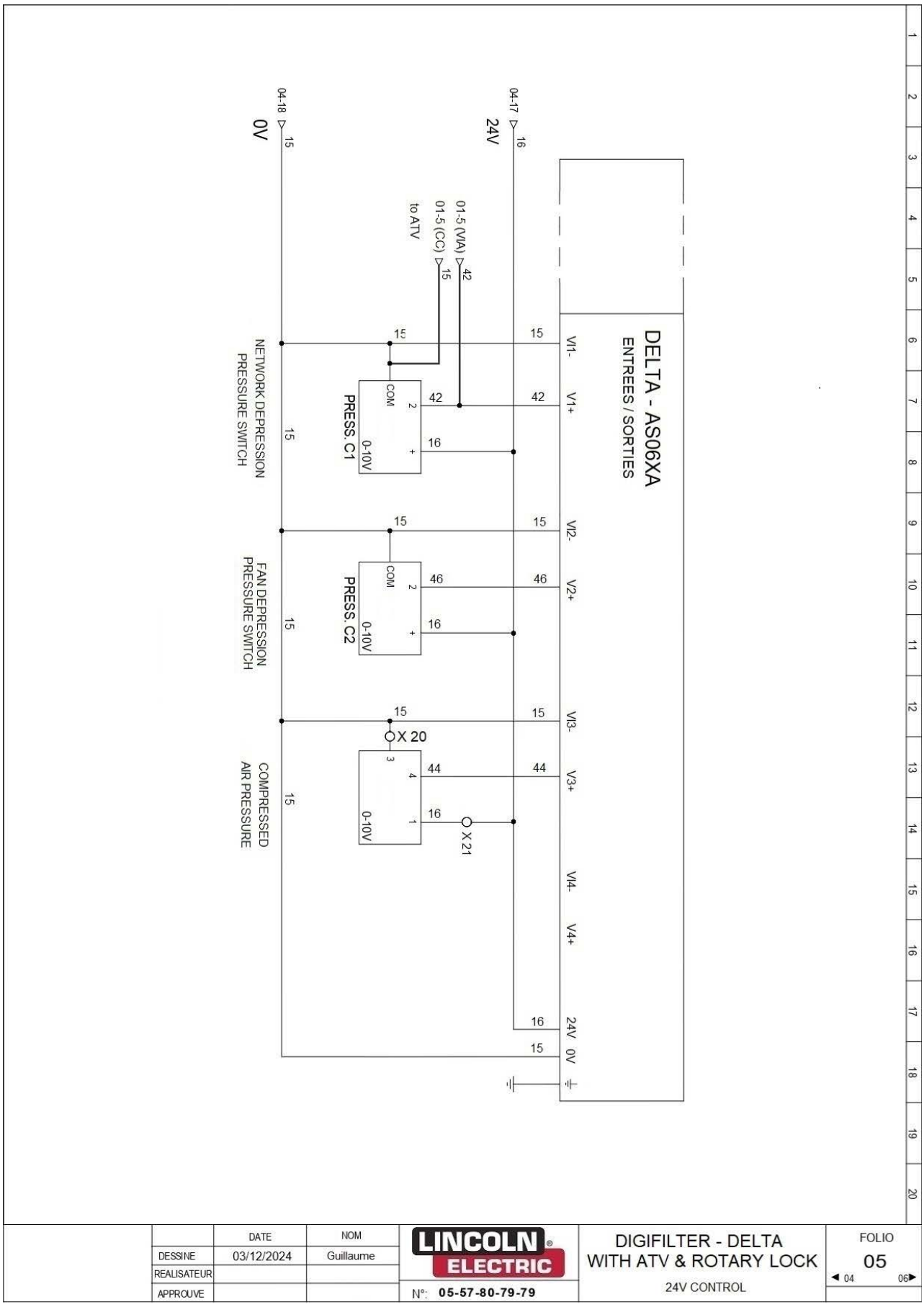




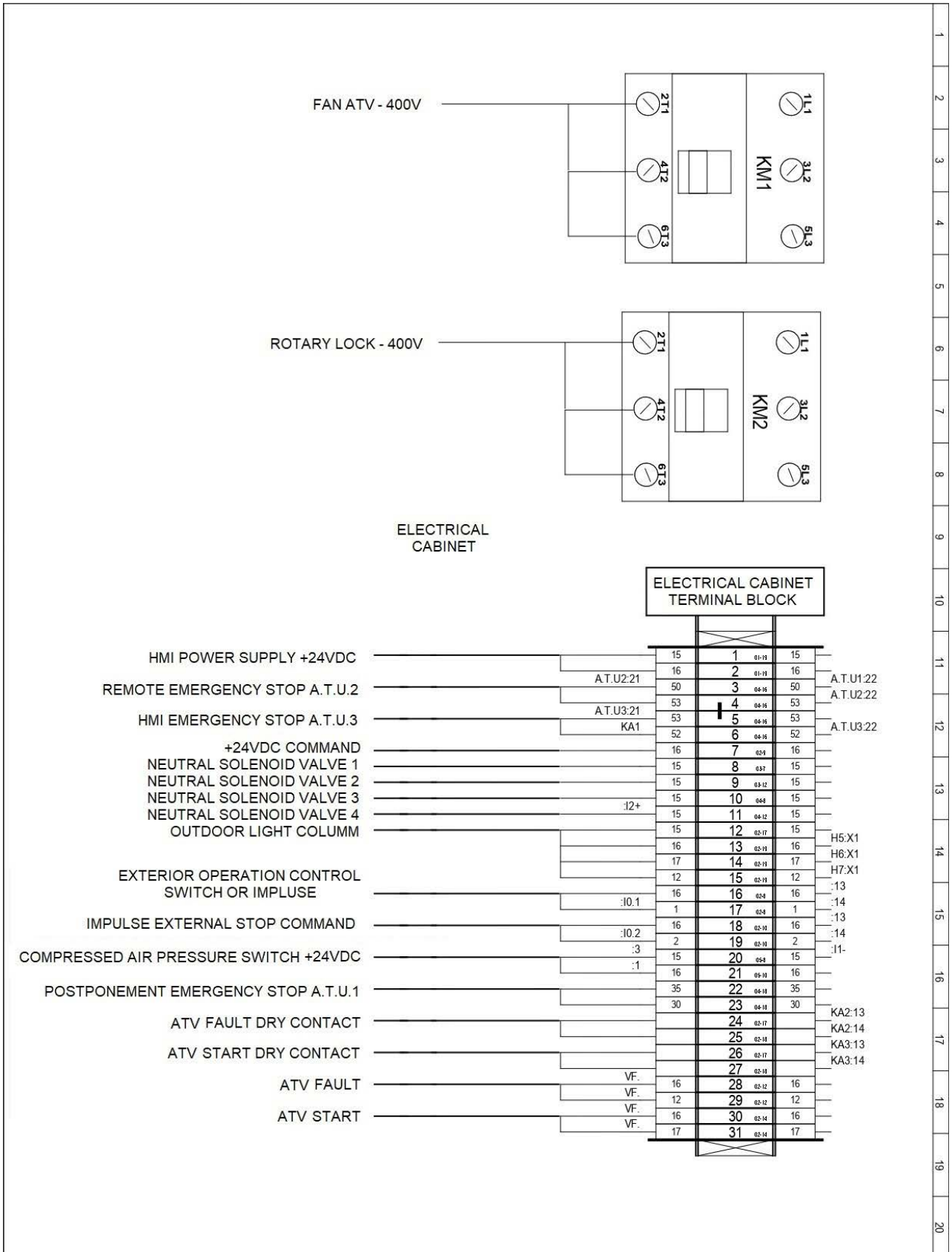
	DATE	NOM			
DESSINE	03/12/2024	Guillaume	LINCOLN ELECTRIC	DIGIFILTER - DELTA WITH ATV & ROTARY LOCK	FOLIO 02
REALISATEUR			N°: 05-57-80-79-79	24V CONTROL	◄ 01 03►
APPROUVE					


DELTA - AS228R
SORTIES - OUT
CONNECTING SOLENOID VALVES DIRECTLY TO THE PLC
0V
24V
02:20
04-3
NEUTRAL SOLENOID VALVES
SOLENOID VALVES 1
SOLENOID VALVES 2
SOLENOID VALVES 3
SOLENOID VALVES 4
NEUTRAL SOLENOID VALVES
SOLENOID VALVES 5
SOLENOID VALVES 6
SOLENOID VALVES 7
SOLENOID VALVES 8
EV1
EV2
EV3
EV4
EV5
EV6
EV7
EV8
C0
C1
DESSINE
REALISATEUR
APPROUVE
DATE
NOM
03/12/2024
Guillaume
LINCOLN ELECTRIC
N°: 05-57-80-79-79
DIGIFILTER - DELTA
WITH ATV & ROTARY LOCK
24V CONTROL
FOLIO
03

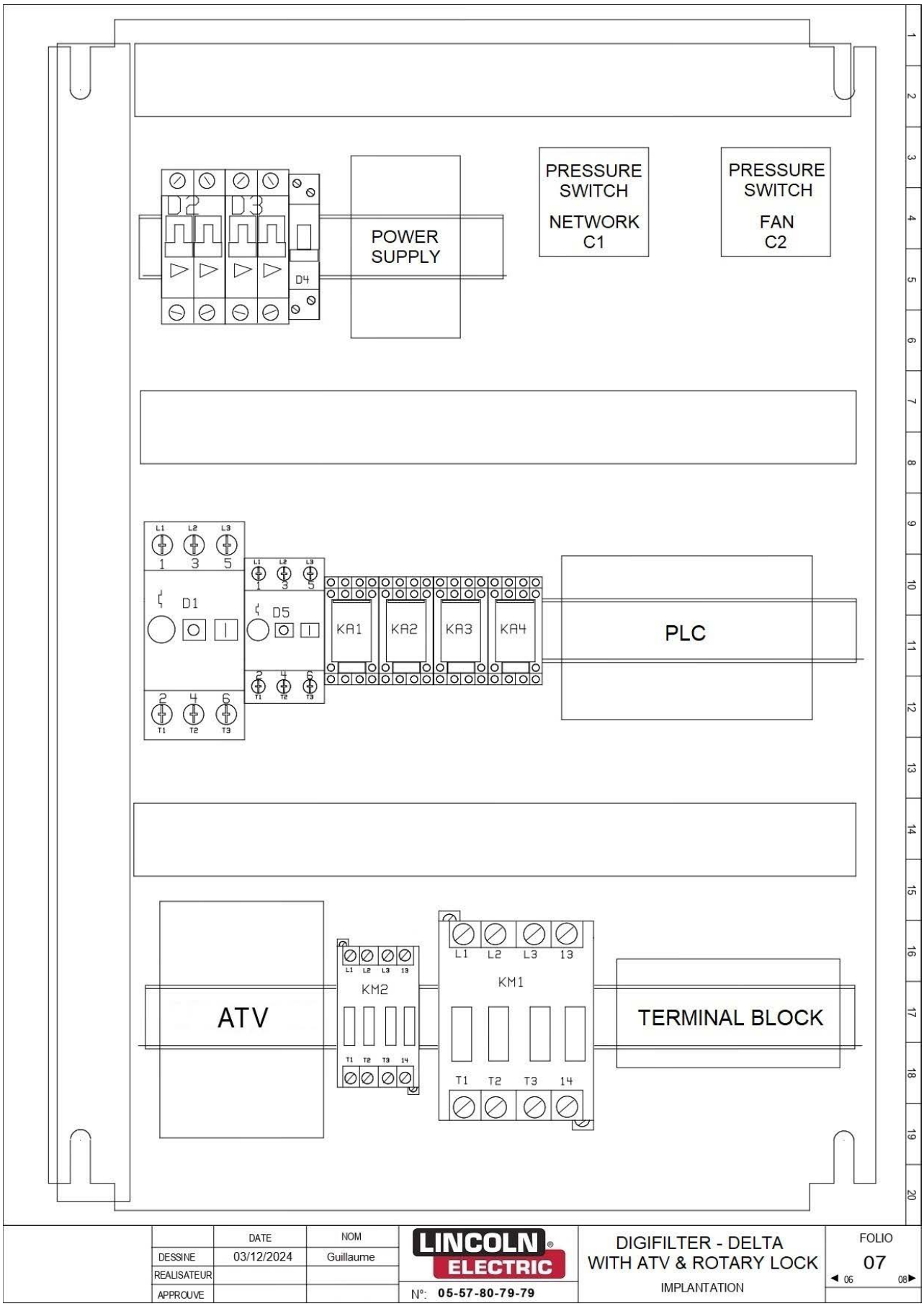

DELTA - AS228R
SORTIES - OUT
DELTA - AS08AN
SORTIES - OUT
CONNECTING SOLENOID VALVES DIRECTLY TO THE PLC
0V
24V
NEUTRAL SOLENOID VALVES
SOLENOID VALVES 9
SOLENOID VALVES 10
SOLENOID VALVES 11
SOLENOID VALVES 12
NEUTRAL SOLENOID VALVES
ATV CONNECTOR - F
ROTARY LOCK MOTOR
KA4
KA1
A.T.U3
A.T.U2
A.T.U1
CONTROL SCREENN
DEPORT
ELECTRICAL BOX
EMERGENCY STOP COPY
In red, wiring without the ICP option
DESSINE
REALISATEUR
APPROUVE
DATE
03/12/2024
NOM
Guillaume
LINCOLN ELECTRIC
N°: 05-57-80-79-79
DIGIFILTER - DELTA
WITH ATV & ROTARY LOCK
24V CONTROL
FOLIO
04



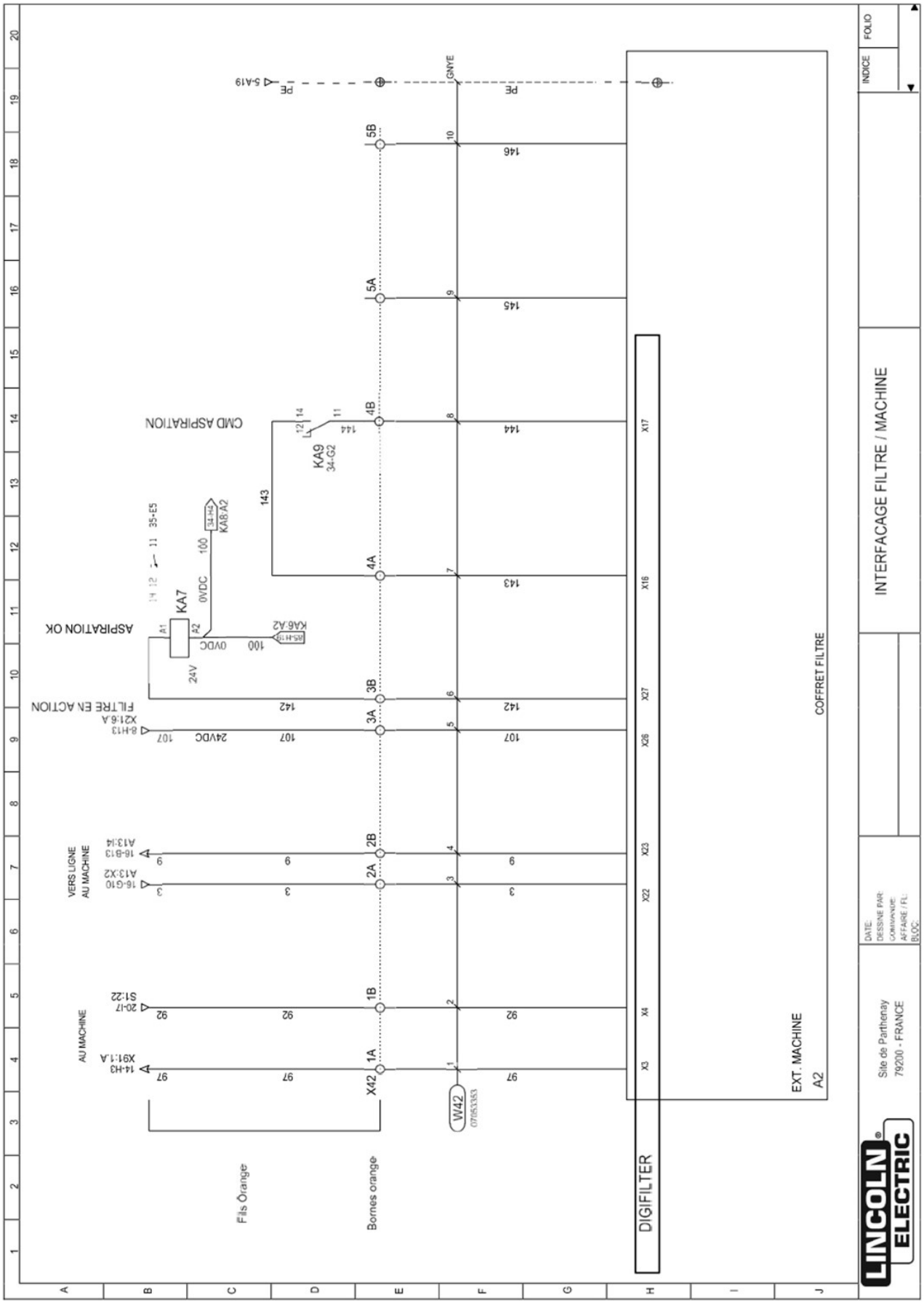
	DATE	NOM			
DESSINE	03/12/2024	Guillaume	LINCOLN ELECTRIC	DIGIFILTER - DELTA WITH ATV & ROTARY LOCK	FOLIO 05
REALISATEUR					◄ 04 06►
APPROUVE			N°: 05-57-80-79-79	24V CONTROL	



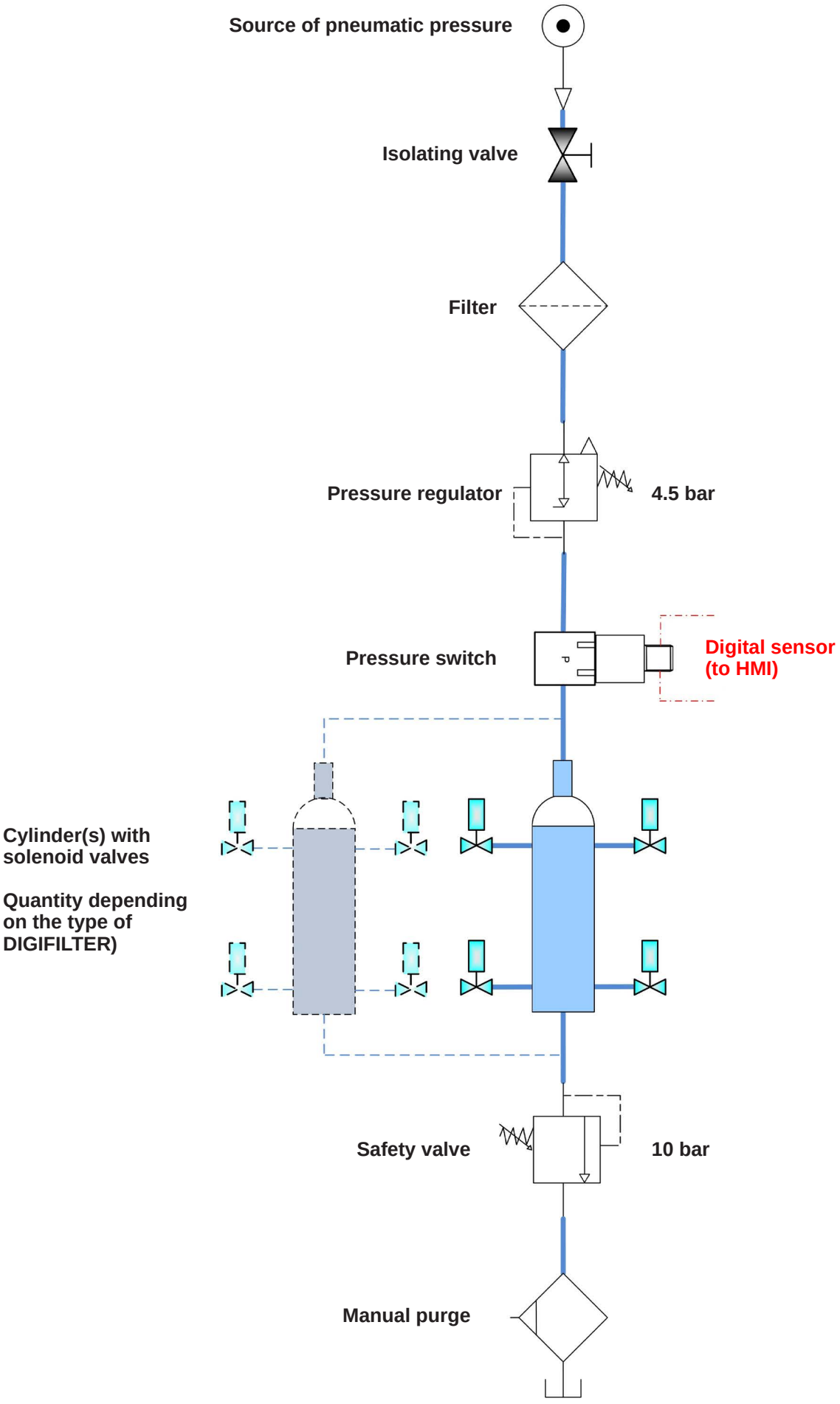
		DATE	NOM			
	DESSINE	03/12/2024	Guillaume	LINCOLN ELECTRIC	DIGIFILTER - DELTA WITH ATV & ROTARY LOCK	FOLIO 06
	REALISATEUR					◄ 05 07►
	APPROUVE			N°: 05-57-80-79-79	TERMINAL BLOC	


D2
D3
D4
POWER SUPPLY
PRESSURE SWITCH NETWORK C1
PRESSURE SWITCH FAN C2
D1
D5
KA1
KA2
KA3
KA4
PLC
ATV
KM2
KM1
TERMINAL BLOCK
DATE
NOM
DESSINE
03/12/2024
Guillaume
REALISATEUR
APPROUVE
LINCOLN ELECTRIC
N°: 05-57-80-79-79
DIGIFILTER - DELTA WITH ATV & ROTARY LOCK
IMPLANTATION
FOLIO
07
◄ 06
08 ►

2.3 Automatic machine interconnection



2.4 Pneumatic diagram



Ordering procedure:

Almost all the parts of a machine or installation are referenced in the photographs and sketches.

The descriptive tables contain three types of items:

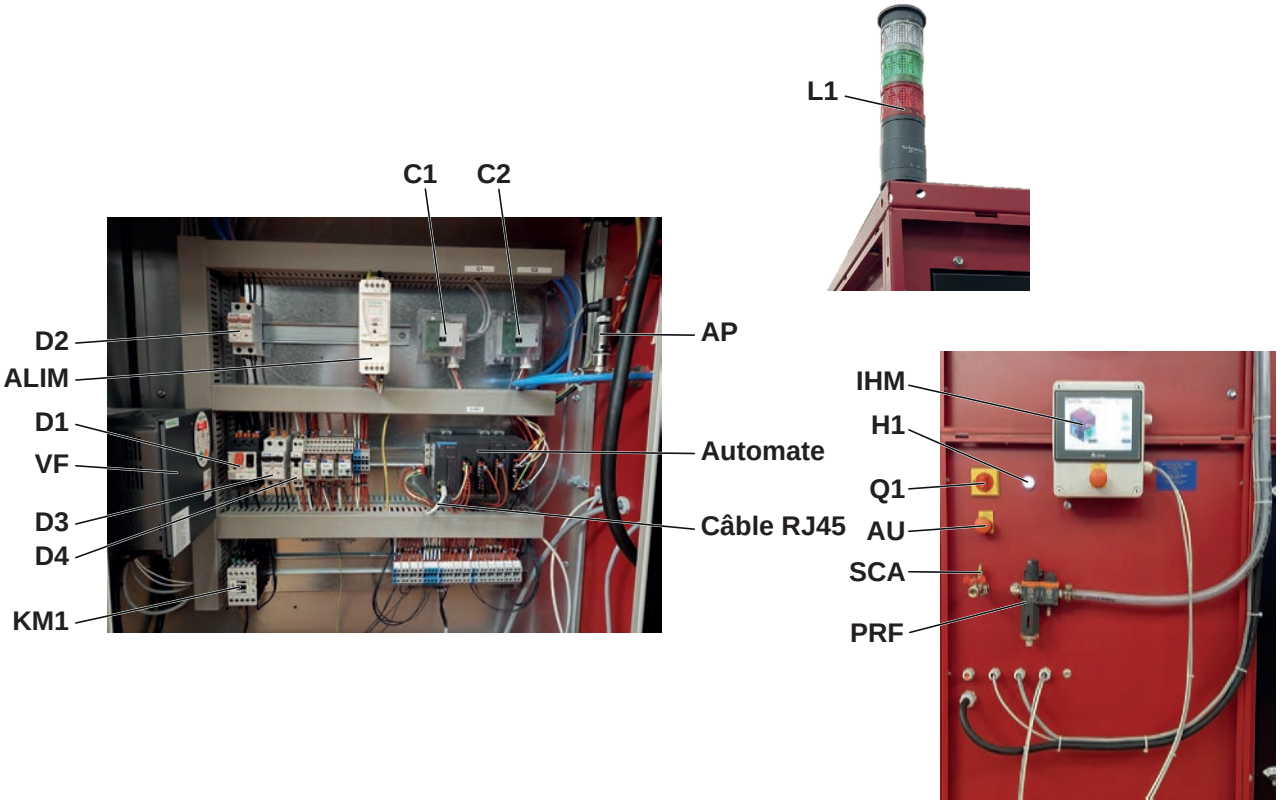
- items normally held in stock: ✔
- items not held in stock: ✘
- articles upon request: no reference

For items referenced in the photographs or sketches but not included in the tables, please send us a copy of the relevant page and highlight the relevant reference.

Example:

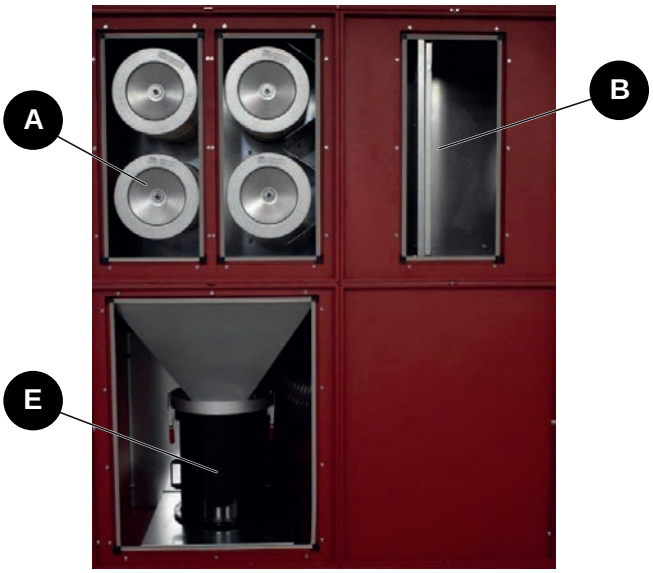
Ref	Part no	Stock	Description	Qty
E1	W000XXXXXX	✔	Machine interface board	
G2	W000XXXXXX	✘	Flow meter	
A3	P9357XXXX		Printed front plates	

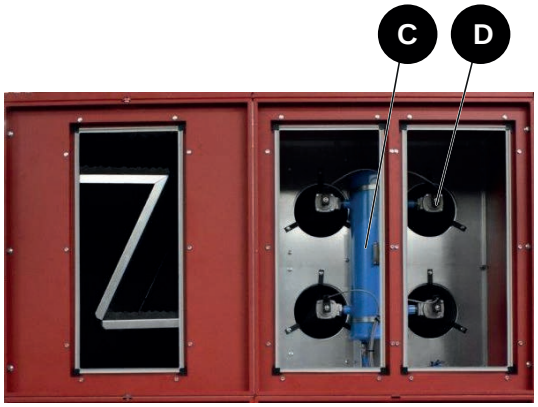
3.1 Electrical components



Ref	Part no	Stock	Description	Qty
POW-ER	EM61000469	✘	400/24 VDC 60 W power supply	1
Q1	Please enquire	✘	Disconnecting switch	1
D1	Please enquire	✘	Motor circuit breaker	1
D2	EM61000812	✘	Two-pole circuit breaker, 2 A	1
D3	EM61000813	✘	Two-pole circuit breaker, 1 A	1
D4	EM61000614	✘	Phase + Neutral 2A circuit breaker	1
KM1	Please enquire	✘	Contactor - 400V	1
H1	EM61000815	✘	White 380 V indicator	1
C1/C2	W000276149	✔	C1 system and C2 fan pressure switch	2
	EM61000483	✘	Plastic pressure connector	2
	EM61000493	✘	Crystal tube Ø10 – L10m	2
AP	EM61000817	✘	Compressed air sensor	1
Emer-gency stop	EM61000811	✘	Emergency stop	2
VF	W000381527	✘	Variable drive ATV212 - 22KW - **DIGIFILTER 16CD**	1
	W000381529	✘	Variable drive ATV212 - 30KW - **DIGIFILTER 20CD**	1
	W000381530	✘	Variable drive ATV212 - 37KW - **DIGIFILTER 24CD**	1
HMI	EM61000513	✔	HMI screen - DELTA	1
PLC	EM61000514	✔	Complete **DIGIFILTER** PLC - DELTA	1
RJ45 cable	EM61000473	✘	RJ45 cable connecting HMI/PLC - 15m	1
SCA	EM61000816	✘	Compressed air safety valve kit	1
PRF	EM61000470	✘	Pressure reducer filter	1
L1	EM61000810	✘	Three-level stack light	1

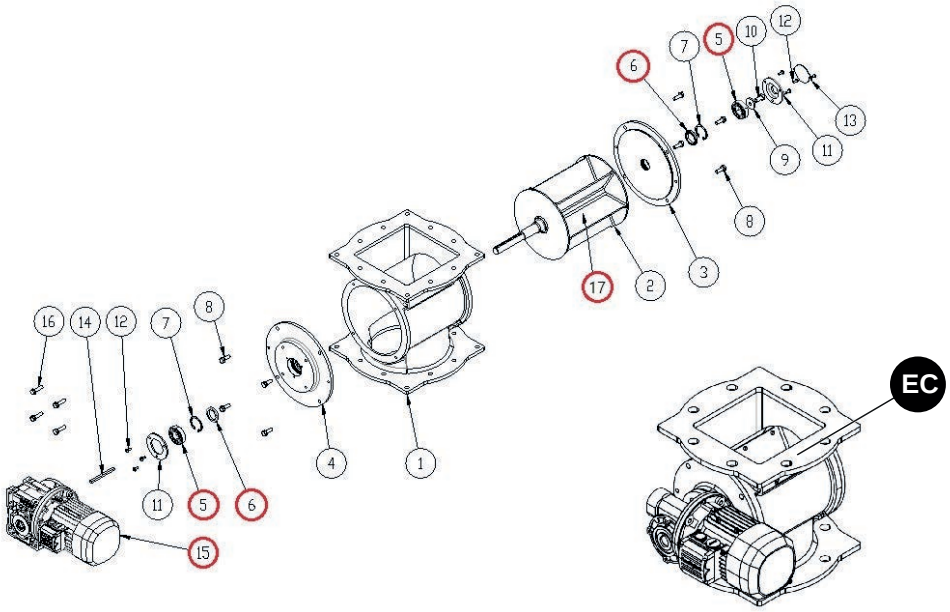
3.2 Mechanical components





Ref	Part no	Stock	Description	Quantity		
				16CD	20CD	24CD
A	EM61000155	✔	Filter cartridge with PTFE membrane, 15M²	16	20	24
	EM61000156	✘	Application for oily fumes Filter cartridge with PTFE impregnation	16	20	24
	W000277185		Filter cartridge support	16	20	24
B	W000379658	✔	Metal pre-filter (800mm x 295mm x 2mm)	6	8	8
C	W000342244	✘	Air reservoir kit, 4 solenoid valves	4	4	4
	EM61000466	✘	Reservoir support, 4 solenoid valves	4	2	4
	EM61000467	✘	Reservoir support, 2 solenoid valves		4	4
	W000342821	✘	Air reservoir kit, 2 solenoid valves		2	4
D	S94002086	✔	Solenoid valve, 6.0D	16	20	24
E	EM61000819	✘	Dust container	2	2	2
	EM61000820	✘	Set of 2 latches for dust container	2	2	2
	EM61000821	✘	Dust container seal (x1)	2	2	2

3.3 Rotary discharger



Ref	Part no	Stock	Description	Qty
EC	EM61000478	✘	Complete rotary discharger - after 2021	1
5	EM61000481	✘	Set of 2 ball bearings - Rotary discharger after 2021	1
6	EM61000482	✘	Set of 2 lip seals - Rotary discharger after 2021	1
15	EM61000479	✘	Complete geared motor - Rotary discharger after 2021	1
17	EM61000480	✘	Set of 6 blades - Rotary discharger after 2021	1

PERSONAL NOTES

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76121 Le Grand Quevilly cedex
www.lincolnelectriceurope.com